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ABSTRACT

This resource manual uses a general systems model for educational planning, instruction, and evaluation to describe a college introductory economics course. The goal of the manual is to help beginning or experienced instructors teach more effectively. The model components include needs, goals, objectives, constraints, planning and strategy, implementation, data collection, and evaluation, and are used to describe each part of the course as well as the entire course. Topics discussed are economics course content, learning theory, instructional objectives, lectures and classroom discussion techniques, essay questions and tests, multiple choice objective tests, organizing an economics course, development and evaluation of teaching skills through the use of videotapes, course and instructor evaluation, learning aids, microteaching, and interpersonal communication skills emphasizing empathy and genuineness. Three appendices include a program description of the 1973 Teacher Training Conference for Instructors of College Economics, a list of schools with training programs in teaching economics and selected sample syllabi, and description and ordering information for videotapes. (CK)

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RESOURCE MANUAL

FOR TEACHER TRAINING PROGRAMS IN ECONOMICS

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Preface

The origins of this Manual and the associated videotapes go back to the early 1970's when growing concern about the quality of economics instruction began to surface among undergraduate students and to a lesser degree among faculty members. Concurrently, a handful of economics instructors were attempting to meet this concern by experimenting with improvised, small-scale programs of instructional improvement within their own departments. Sensing the need and the possibilities, the American Economic Association's Committee on Economic Education and the Joint Council on Economic Education, launched a major program to improve college level economics instruction. The purposes of this program were to develop this Manual, around which teacher improvement programs could be centered, and to institutionalize teacher improvement programs in major Ph.D. producing economics departments. The Alfred P. Sloan Foundation generously agreed to finance this major effort.

Commenting on the problem of developing effective college economics teachers at the American Economic Association meetings in December, 1972, G. L. Bach, the Chairman of the AEA Committee on Economic Education, noted:

> Clearly, one of the major barriers to progress is the heavy start-up cost for the individual teacher and institution in establishing a useful teacher-training component in graduate programs. We propose, therefore, to develop a working model for such a program -- one that can be flexibly adapted to the varying needs of different graduate economics programs -- and to make this "pilot plant" program widely available to graduate departments....
>
> There is no one best way to teach, or one best way to train teachers. The working model will thus be modest and suggestive, adaptable for use by graduate departments as a seminar to TA's or in other ways.[1]

As the first step in developing a variety of "working models" or "pilot plant" programs, an intensive two-week program involving faculty members and graduate students from different universities throughout the country, was held at Indiana University in August 1973. Most of the chapters in this Manual and the accompanying videotapes resulted from the efforts begun at that time. An outline of the contents of the 1973 teacher training conference is included in Appendix I, along with a list of the guest speakers, resource persons, and participants involved in that initial effort.

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[1] G. L. Bach, "An Agenda for Improving the Teaching of Economics," American Economic Review 63 (May 1973), pp. 303-308.

Efforts were made immediately thereafter to help a number of economics departments launch their own training programs. Three papers on various aspects of the early training programs were presented at the December 1975 meetings of the American Economic Association; one department's program is described, and two student participants offer their evaluations.[2]

As of 1978, there are fully institutionalized, regularly scheduled teacher training programs for Ph.D. students in economics at a number of major graduate schools. These programs vary considerably, depending on local needs. In some cases they comprise intensive two or three day sessions held immediately before the beginning of classes and devoted to the development and practice of specific skills needed by question writers, exam graders, or discussion leaders in courses where the course objectives, reading assignments, and lectures have already been determined and planned by supervising faculty members. In others they involve semester-long seminars for graded course credit that emphasize all aspects of the learning and teaching process. Participation in some programs is limited to graduate students who have already been appointed as teaching assistants, and some of these programs are conducted prior to the beginning of the teaching assignment; others are conducted concurrently with the initial teaching experience. Still other programs are open to any graduate students who want to enroll, with performance in the program used as one criterion in selecting students for subsequent teaching positions. A list of the schools with currently instituionalized programs and some details about each are presented in Appendix II, which includes sample syllabi for different types of programs.

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[2] Darrell R. Lewis and William E. Becker, Jr., "The Teacher Training Program for New Ph.D.s," Stephen H. Long, "On Teaching Teachers to Teach," and Richard B. Hansen, "One Participant's View of the Teacher Training Program," American Economic Review 66 (May 1976), pp. 229-239.

Several forces have led to implementation of these programs at the institutions where they now exist. Some of the forces have come from the "supply" side of the market where faculty members, interested in a program for its own sake, or needing it because of their responsibility for instruction in large principles courses, have established their own programs. Others have come from the "demand" side of the market, particularly now that competition for teaching jobs has increased and the ability to teach means more at the margin to employers now than it might have a decade or more ago. Further, now that some of the heavy initial "start-up" costs have been reduced by the development of prototype models and specially developed training materials, the way has been paved for a further expansion of teacher training programs in economics.

It is, of course, too early to tell whether these efforts will result in a sustained long run improvement in undergraduate teaching; but there are some encouraging signs along with an increasing awareness of the very real difficulties that must be surmounted if we are to increase substantially the amount of economics students learn _and retain_ in their undergraduate courses.

We hope that this _Manual_ and the associated video tapes can make a significant contribution to this effort, and we welcome constructive criticism of our work. As Professor Bach noted at the outset of our efforts, not only is there no one best way to teach economics to all students in all situations, neither is there any one best way to train economics teachers. Yet, as more experience and field testing develops, we hope occasionally to revise and improve these materials in such a way that they can serve as a flexible resource for universities that wish to establish training programs in the teaching of economics.

* * *

We want to acknowledge the contributions of many others to the development of this _Manual:_

The 1972 AEA Committee on Economic Education whose members, G. L. Bach, Kenneth E. Boulding, Marshall Colberg, Harold F. Williamson, Rendigs Fels and especially Allen C. Kelley, seized the initiative in developing the proposal for the Sloan Foundation.

G. L. Bach, Stanford University; James M. Buchanan, Virginia Polytechnic Institute; Rendigs Fels, Vanderbilt University; the late R. A. Gordon, University of California, Berkeley; Walter W. Heller, University of Minnesota; and George J. Stigler, University of Chicago, who served as the Advisory Board of distinguished economists for this project.

Darrell R. Lewis and Allen C. Kelley who served with us on the Planning Committee for the 1973 summer conference.

Kenneth Majer, now at the University of California-San Diego, who did a superb job of organizing and managing the 1973 summer conference, continued working with us after the conference, and co-authored chapters 14 and 15 of this Manual.

The speakers, resource persons, and participants at the conference for spending two mid-summer weeks in Bloomington where we learned much from trying to help them learn more about teaching.

The many groups the three of us have spoken to at various professional meetings and institutional or departmental teacher improvement programs, where many valuable criticisms and comments have been offered.

The economics faculty members at various institutions who have given us the benefit of their experience operating teaching training programs, in particular Elisabeth Allison at Harvard University.

Our various assistants and secretaries, among them Lou Ann Karter and Debby Verbick who helped immeasurably in getting the Manual together and typed.

And finally, the Sloan Foundation, the Joint Council on Economic Education, and the AEA Committee on Economic Education for their patience in waiting so long for the Manual and tapes to reach their present form.

P.S.
A.L.W.
W.L.H.

Chapter 1

INTRODUCTION

Phillip Saunders, Arthur L. Welsh, W. Lee Hansen

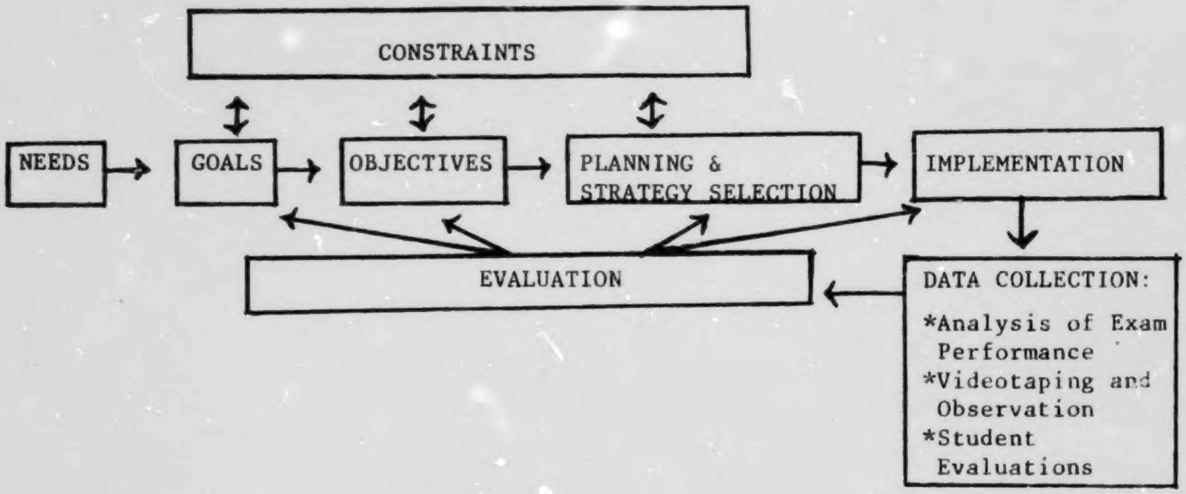
Effective teaching at the college level is no easy task under the best of circumstances. For the graduate student instructor, whether he or she be called an associate instructor (AI), a teaching assistant (TA), a discussion leader (DL), or whatever, the switch from student to teacher is often a particularly difficult one. The purpose of this Manual is to help graduate student instructors do a more effective job in whatever teaching role they perform. Beyond this, we hope that the Manual will be of assistance to new as well as experienced college teachers in economics who seriously want to improve their effectiveness in helping students learn.

We take student learning to be the goal of college teaching, and we see the teacher's role as one in which he or she organizes and manages the available resources in such a way that student learning is enhanced. So conceived, effective teaching involves much more than what goes on in the classroom itself. Specification of course objectives, course planning, sequencing of instructional content, and effective testing and evaluation are crucial factors in student learning that are often not readily apparent to the casual observer. Within the classroom itself, a variety of "styles" are compatible with effective teaching. There is no single one best way to teach that can be adopted universally by all teachers in all situations. Each instructor must experiment, modify, and adapt until he or she discovers the classroom style they are the most comfortable with in different situations. We believe, however, that experimenting, modifying and adapting can take place within the broad framework of a general systems model for educational planning, instruction, and evaluation. Such a model is illustrated in Figure 1 shown on Page 2.

A SYSTEMS MODEL

This basic systems model can be employed to discuss an entire college curriculum, the curriculum of a particular department, a particular course of one, two, or three terms length, or a single component of a particular course. We will use the model to discuss a course, since this is the context in which most beginning instructors are likely to be involved.

Figure 1
Systems Model for Educational
Planning, Instruction, and Evaluation


CONSTRAINTS
NEEDS
GOALS
OBJECTIVES
PLANNING & STRATEGY SELECTION
IMPLEMENTATION
EVALUATION
DATA COLLECTION:
*Analysis of Exam Performance
*Videotaping and Observation
*Student Evaluations

Needs. Why should a college student take a particular course in economics? What are the student needs that have to be met? What should a person who successfully completes this course be able to do that cannot be done by a person who does not successfully complete this course? Too often little attention is given to the broad purposes of particular courses in terms of the needs to be met. If the instructor cannot identify some inportant unmet needs, there is little justification for offering a course. If some important unmet needs can be identified, these needs can and should be translated into specificed course goals.

Goals. Goals are broad statements or generalizations about what is to be accomplished. They provide the focus and direction for more detailed course planning. These goals can reflect concerns about both course content and student attitudes.

Objectives. Objectives are specific statements that help one determine whether or not course goals have been reached. Each goal specified for a course may have a series of objectives that are specific to that goal. When each of those objectives has been achieved there can be assurance that the goal has been reached.

Constraints. No teacher can ever accomplish all that he or she would like to accomplish. Resources are limited. The existing constraints imposed by time, equipment, and other activities mean that course goals, course objectives, and instructional strategies must be fashioned in a realistic manner that considers the nature of these constraints.

Planning and Strategy Selection. Once course objectives have been realistically determined in light of existing constraints, planning involves determining the most effective way to help students reach the prescribed objectives already developed. This involves selecting appropriate material, sequencing the material, and determining the most appropriate teaching methods and instructional strategies for attaining various objectives.

Implementation. The actual implementation of instructional plans in the classroom is what is usually called "teaching." As already noted, what goes on in the classroom is only the visible tip of the iceberg--there must be a solid foundation of planning and preparation underlying classroom presentations, even if the foundation is not always visible. The actual presentation of material through lectures, discussions, or other methods is an important task that a good teacher should monitor constantly through data and feedback gathered in a variety of ways.

Data. The data collected to evaluate a course can come from the comments by colleagues or associates on statements of course objectives, assignment sheets, exam materials, homework problems, and classroom visits. Data can be collected from students on how well they perform on exams and other assignments, and instructors can solicit student comments and opinions on any of a number of different evaluation questionnaires. Finally, and perhaps most helpful of all in improving classroom performance, instructors can watch videotapes of their behavior in the classroom. The main purpose of collecting data from these sources is to obtain feedback for modifying and improving one's performance in the goals, objectives, planning, and implementation stages of the learning-teaching process.

Evaluation. This is an on going process that relates back to each component of the systems model shown in Figure 1.

This systems model may seen somewhat artificial or abstract to a beginning instructor. Or it may seem to represent simple common sense. In either case, experience indicates that serious mistakes can occur and poor teaching result when instructors do not take a broad, systematic, and continuing look at the learning-teaching process. Not seeing the forest for the trees is an ever present danger as we sometimes become obsessed with "covering" the material. What material? In what way? For what purpose?

USING THE MANUAL

Each chapter in this Manual is organized along the lines suggested by the model just discussed. The format includes a statement of "needs," "goals," and "objectives," followed by a skeleton outline of the main points covered in the chapter. A summary list of highly practical "Do's" and "Don'ts", a brief list of references, and some learning "exercises" are provided at the end of most chapters. In addition, Table 1 beginning on Page 5 gives suggestions about how the video tape material described more fully in Appendix III can be used in conjunction with the written material provided in this Manual.

We recognize that each teaching situation generates its own unique set of needs and constraints, and we have tried to maximize the flexibility with which the Manual can be used. Individual chapters do not have to be used in sequential order. Indeed, we have tried to provide a "menu" of resources and suggestions that can be adapted and used in a variety of different situations. To provide further help, Appendix II includes information about several different teacher training programs that should be useful to anyone perplexed about how to organize a program. As already noted, Appendix III describes the video tapes mentioned in Table 1 and provides prices and ordering information.

We believe that the "live" character of the video tape material adds an important dimension that is difficult to convey in written form, and we encourage readers of this Manual to consider strongly the possibility of experimenting with at least a few of these tapes. Readers should understand, however, that most of these tapes are not professionally made. They were produced as a byproduct of some other activity. with the result that their technical standards are often low. On the other hand, they possess an authenticity and spontaneity that we think overcomes their technical shortcomings.

We should add that anyone in charge of organizing a teaching program using video tapes has an obligation to preview the tapes; this obligation goes beyond an instructor's normal obligation to read written material assigned to their students because, in contrast to written material, none of the students viewing the tapes will have had access to them beforehand.

Table 1

Suggestions for Using Supplementary Video Tapes

There are many possible ways of using the video tapes described in detail in Appendix III. The table below may be helpful in summarizing how the tapes are related to the chapters of the *Manual* and suggesting how the tapes might be used in conjunction with each chapter.

Manual Chapter	Tape Numbers and Titles	Suggestions on How to Use Tapes
1. Introduction	#5 University of Michigan Teaching Fellow Trigger Tapes	The short episodes are useful for discussion in a continuing seminar or in a short training session. They might be used "before" and "after" the seminar or training session because they provide participants an opportunity to apply what they have learned in the various episodes. Allow ample time for discussing each episode. To use all of them in one session is probably excessive, so selection and pre-planning is important.

Manual Chapter	Tape Numbers and Titles	Suggestions on How to Use Tapes
1. Introduction	#19 Interpersonal Communication Skills	Although this tape was developed for use with Chapter 15 of this Manual, the two episodes can also provide a starting point for discussing a variety of important teaching topics such as grading, instructional objectives, and course planning.
4. Instructional Objectives	#4, #12, #19	See preceeding and subsequent suggestions on these tapes.
5. Lecturing	#6 Lecture on Lecturing	An oral presentation of most of the points covered in Chapter 5 which illustrates how the author practices what he preaches. Should be viewed prior to seminar session but after reading Chapter 5.
	#7 An Introductory Classroom Lecture on the Price Elasticity of Demand	Shows author of Chapter 5 trying to practice what he preaches in an economics lecture. Best used in seminar to trigger discussion on effectiveness of lecturing techniques.
	#8 Tips on Delivery	Suitable for short training session; optional for seminar.
	#9 Preparing Your Section	Suitable for short training session; optional for seminar.
	#10 Specific Delivery Skills	Suitable for short training session; optional for seminar.
	#11 The $10 Bill	Useful in a seminar to illustrate ways of motivating students in lectures.
6. Discussion	#2 Leading Discussions	Useful for viewing prior to seminar meeting to obtain general background on discussion leading
	#4 Effective Grouping Techniques	Useful for viewing prior to seminar meeting to learn how grouping techniques can enhance discussions.

Manual Chapter	Tape Numbers and Titles	Suggestions on How to Use Tapes
6. Discussion	#12 Discussion and Instructional Objectives	Helpful in showing how to relate discussion topics and questions to the achievement of particular instructional objectives.
	#14 Discussing a Simple Case	Especially useful in pre-course session if the "case approach" is to be used. Also, valuable for seminar presentation to illustrate case approach and how to discuss cases.
	#15 Discussing a Policy Case	Especially useful in pre-course training session, or in followup meeting several weeks later if the "case approach" is used. Also, valuable for seminar presentation to illustrate discussion of policy cases.
	#16 Practice in Discussing Cases: A Simple Case	Optional; for viewing individually.
	#13 or Audio Tape--Adam Smith on "Natural Price"	Useful to listen to after reading Chapter 6. Appropriate for seminar meeting or for pre-course training session.
10. Planning an Economics Course	#20 TIPS	Useful for viewing prior to seminar meeting which considers course planning and the role of innovations in course design.
11. Development and Evaluation Videotape	#17 Videotape Feedback for Economics Instrustors	Useful for viewing prior to seminar meeting to complement reading of chapter on Minnesota system.
12. Course and Instructor Evaluation	# 1 Observing Teaching	Useful to view in seminar or training session to serve as a springboard for discussing how people can improve their teaching. Also useful to faculty supervisors who must observe and evaluate younger instructors.
	#17	See suggestions above.

Manual Chapter	Tape Numbers and Titles	Suggestions on How to Use Tapes
13. Teaching Aids	# 3 Media in the Classroom	Useful for viewing prior to seminar meeting.
	#11 The $10 Bill (color version)	Useful in seminar for showing how effective media presentations can be.
14. Microteaching	#18 A Microteaching Session	Helpful in introducing the concept of microteaching and how it can be used.
15. Interpersonal Communication Skills	#19 Interpersonal Communication Skills	Useful for generating discussion about dealing with the attitudes of students and instructors toward each other, the course, and specifically toward exam results.

As indicated in the preface, we hope to occasionally revise the material in this Manual in response to user suggestions, and it is quite likely that additional video tapes will be developed. Persons wanting to keep informed about revised or additional material are encouraged to address inquiries to:

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New York, New York 10036

Chapter 2

ECONOMICS COURSE CONTENT

W. Lee Hansen, Phillip Saunders, Arthur L. Welsh

NEEDS

The famous recipe for rabbit stew that begins "First catch a rabbit..." underlines the primacy of knowledge of the subject matter before one can become an effective teacher. Despite the importance of subject matter knowledge, however, we will not have a great deal to say about economics *per se* in this *Manual*. The subject matter topics selected for "coverage" in any particular course or teaching unit will depend on the needs to be met, the goals to be achieved, and the constraints that exist in particular situations. Since most users of this *Manual* are likely to be involved with introductory courses in college economics, and since the content of the introductory course is a subject on which a great deal has been written, we believe that a brief *non-prescriptive* summary of some of this material might save many beginning instructors from the need to reinvent the wheel in this area.

GOALS

The goal of this chapter is to provide a concise annotated reference guide to much of the material that has been published in the area of introductory economics course content in the hopes of stimulating beginning instructors to think for themselves in this crucial area.

OBJECTIVES

COGNITIVE OBJECTIVES

After reading this chapter you will be able to:

a) identify two journals that regularly contain articles on economic course content.

b) identify two books or pamphlets on economics course content that have been published since 1975.

AFFECTIVE OBJECTIVES

After reading this chapter it is hoped that you will respond by actively reading at least three of the references annotated and use them as the foundation for thinking more about the economics content of the next course you teach.

ECONOMICS COURSE CONTENT

JOURNALS AND PERIODICALS

1. American Economic Review, Papers and Proceedings, issued every May.

For over two decades the American Economic Association has devoted at least one session of its annual meetings to a program organized by the AEA Committee on Economic Education. Several of the papers at these sessions have dealt with the content of the introductory course including the following:

K. E. Boulding, J. G. Gurley, and W. L. Hansen, "The Principles Course: What Should Be In It And Where Should It Be Going," American Economic Review, Proc., 1975, 65, 428-437.

Boulding suggests that we refocus attention from the teaching of economics to the learning of economics by students, and calls for the creation of more "cognitive dissonance" between the teacher and students.

Gurley comments on the notable lack of attention in contemporary economics principles courses to Marxian economics and the frequent errors discovered when Marxian economics is treated. He laments the preoccupation with the teaching of economy theory, preferring instead a greater attention to the application of a limited body of theory to real world situations, as exemplified in the recent development of case studies.

Hansen reviews some recent major changes in the teaching of the principles course in economics and attempts to identify some of the forces accounting for these changes. He notes a growing disenchantment with courses centered around massive textbooks, and indicates that a greater number of instructors are designing courses to achieve the goals they prefer to emphasize in their own teaching.

Rendigs Fels, "Developing Independent Problem-Solving Ability in Elementary Economics," American Economic Review, Proc., 1974, 64 403-407.

Fels makes a persuasive argument for attempting to train students to analyze economic policy issues for themselves. He suggests concentrating attention on a limited number of economic concepts and principles, shifting the focus to a case approach, and providing students with a standard procedure for analyzing and writing up cases of the kind that can be developed out of current newspaper articles.

Michael Zweig, "Teaching Radical Political Economics in the Introductory Course", American Economic Review, Proc., 1972, 62, 434-438.

Zweig describes certain principles of radical economics and indicates how they can be introduced into a one semester principles course that also deals with some of the conventional material of micro- and macroeconomics. Some preliminary evaluation material for such an experiment at the State University of New York at Stony Brook is also presented.

R. C. Edwards, A. MacEwan, and the staff of Social Sciences 125, "Radical Approach to Economics: Basis For A New Curriculum", American Economic Review, Proc., 1970, 60, 352-363.

The paper draws on the experience of the Social Sciences 125 course at Harvard University in an attempt to outline a radical approach to economics and to suggest how several important social problems might be dealt with in that framework. Paul M. Sweezy, Phillip Saunders, and John R. Coleman (pp. 376-39) also offer comments on this paper.

Ben W. Lewis, "A Retrospective Look At Undergraduate Economics", American Economic Review, Proc., 1970, 60, 370-375.

A former chairman of the AEA Committee on Economic Education gives a highly personal and highly eloquent plea for a policy oriented introductory course built around "the great recurrent theme" of opportunity cost.

2. Journal of Economic Education, issued two times per year.

This journal began publication in 1969 to provide an outlet for the burgeoning research on the teaching of economics at all levels. The articles cover a wide range of topics, many of which are relevant to a college or university teacher. In addition to the regular issues of the Journal, a project to develop alternative approaches to the teaching of introductory college economics has resulted in the publication of a series of special issues of the journal that include syllabi and evaluation material for recently developed or modified introductory courses. The special issue published to date are:

R. H. Leftwich and A. M. Sharp, Oklahoma State University, "Syllabus for an 'Issues Approach' to Teaching Economic Principles", Special Issue No. 1, Winter 1974.

Rendigs Fels, Vanderbilt University, "The Vanderbilt-JCEE Experimental Course in Elementary Economics", Special Issue No. 2, Winter 1974.

Barbara and Howard Tuckman, Florida State University, "Toward a More Effective Economic Principles Class", Special Issue No. 3, Spring 1975.

Phillip Saunders, Indiana University, "Experimental Course Development in Introductory Economics at Indiana University", Special Issue No. 4, Fall 1975.

3. Change Magazine, "Report on Teaching 3", Vol. 9, No. 1, January 1977.

This special issue of Change, one of six dealing with improvements in undergraduate teaching in various disciplines, details some of the most noteworthy new developments in the teaching of economics at the introductory and in some cases the intermediate level. Following G. L. Bach's brief survey statement, there are well-written descriptions of Fels' case method at Vanderbilt, Allison's self-paced instruction program at Harvard, Dolbear's computer simulation teaching at Brandeis, the design, teaching, and management of large principles courses by Saunders at Indiana, Boulding's social science approach at Colorado, Paden's PLATO method at Illinois, the issues approach developed by Leftwich at Oklahoma State, and the TIPS program originated by Kelley at Duke.

4. The Review of Radical Political Economics, Vol. 6, No. 4, Winter 1975.

A special issue devoted to the teaching of introductory economics and to social relations in the classroom. The three articles on the content of introductory economics courses are:

Michael Meerpol, "A Radical Teaching A Straight Principles of Economics Course".

Robert Cherry, "The Ideological Bias of Traditional Theory".

Robert Buchele and William Lazonick, "Economics as a Social Science: Introducing the Capitalist Economy".

BOOKS, PAMPHLETS AND MONOGRAPHS

1. W. Lee Hansen, G. L. Bach, James D. Calderwood, and Phillip Saunders, A Framework for Teaching Economics: Basic Concepts, Part I, Master Curriculum Guide in Economics for the Nation's Schools. Joint Council on Economic Education, 1977, $2.50. (JCEE, 1212 Avenue of the Americas, New York, NY 10036)

This is the most recent attempt by a group of economists to spell out the essential content of economics. The report lists 24 major economics concepts in addition to the broad concept of economic institutions, 7 concepts of measurements, and 10 concepts of evaluation. The purpose of this report is to provide a concise statement or framework of basic economic concepts to guide the development of economics curricula in the nation's precollege schools, but much of the content is equally applicable to the beginning college-level course in economics.

2. Kenyon A. Knopf, and James H. Strauss, Eds., The Teaching of Elementary Economics. Holt, Rinehart, and Winston, 1960.

   Though now somewhat dated, most of the issues discussed in this volume remain with us today.

3. Laurence E. Leamer, The Economist as Teacher. Monograph C-13, South-Western Publishing Company, $.30.

   These informal essays are designed to stimulate interest in and thought about our role as college teachers of economics. They deserve to be read by teaching economists whether beginning teaching assistants or experienced full professors and the author believes that they might well provide the basis for a seminar on economics teaching.

4. ________________, Handbook for College Teachers of Economics, Department of Economics, SUNY-Binghamton, 1974, and A Guide to the Selection of College Introductory Economics Textbooks, Department of Economics, SUNY-Binghamton, revised periodically, free.

   These two reports provide a way of classifying texts and courses according to a scheme developed by Leamer. While no detailed attention is given to concepts, as in Hansen, et al., Leamer does devote attention to the various broad goals of different introductory courses. Included among the approaches listed are: analytical or principles, problems, institutional or descriptive, systems, historical, and political economic or social philosophic.

5. Darrell R. Lewis, and Charles C. Orvis, Research in Economic Education. Joint Council on Economic Education, 1971, $3.00. (JCEE, 1212 Avenue of the Americas, New York, NY 10036)

   This volume leads off with a comprehensive essay "Actual and Potential Contributors of Recent Reseach in Economic Education." This is followed by an excellent annotated bibliography of 133 papers, most of which were published in the late 1960's. A surprising amount of useful research on teaching has been done by economists, and a great deal more is underway. Annual updatings of new research articles can be obtained from Professor William E. Becker, Department of Economics, University of Minnesota, Minneapolis, Minnesota 55455.

6. Allen F. Larsen and Andrew T. Nappi, Goals and Objectives of the Introductory College-Level Course in Economics. Federal Reserve Bank of Minneapolis, 1976, free. (FRB, Minneapolis, Minnesota 55480).

   The papers collected here examine the introductory course in light of the need for clearly defined educational goals. The authors and their papers are:

   Campbell R. McConnell, "Some Reflections on the Principles Course"

   Laurence E. Leamer, "Building a Philosophy of Economic Education"

   G. L. Bach, "What Should a Principles Course in Economics Be?"

   William E. Becker and Craig Swan, "A Student-Oriented, Real Problem Solving Approach in Economics"

   Richard H. Leftwich, "Objectives of the College-level Principles of Economics Course"

   D. Bruce Johnstone and Darrell R. Lewis, "Curriculum, Welfare, and the Introductory Collegiate Course in Economics"

7. Keith G. Lumsden, New Developments in the Teaching of Economics. Prentice-Hall, 1967, $5.95.

   This 1966 volume marks the beginning of the most recent efforts to expand the economic profession's interest in and about the effectiveness of economics teaching. The 14 papers provide a useful review of past efforts and indicate new developments in methods of teaching economics.

8. ________________, Recent Research on the Teaching of Economics. Prentice-Hall, 1969, $7.95.

   These papers presented in 1968 at the second conference on new developments in the teaching of economics, represent a notable advance, particularly in their emphasis on research. The bulk of the 14 papers deal with evaluation and methodology. A major concern in all the papers in with motivating and stimulating students.

9. Arthur L. Welsh, Ed., Research Papers in Economic Education. Joint Council on Economic Education, 1972, $5.00. (JCEE, 1212 Avenue of the Americas, New York NY 10036)

   Fourteen more papers growing out of summer workshops at Carnegie-Mellon and Purdue Universities build upon work reported in the earlier Lumsden volumes. The papers cover a wide range of topics such as the use of texts, programmed instruction, critical thinking, instructor effectiveness, and so on.

Chapter 3

LEARNING THEORY

Phillip Saunders*

NEEDS

Most people would agree that how humans learn should influence how teachers teach. Clearly established "laws" or "principles" of learning would be an invaluable aid in planning, presenting, and evaluating instruction. Unfortunately, there is at present no single, generally accepted theory of learning that can be used as an infallible guide to teaching. Nevertheless, an understanding of what psychologists have discovered to date about human learning should still be valuable for those wishing to make their teaching as effective as possible.

GOALS

The goal of this chapter is to acquaint you with the findings of the major "schools" of learning theory that seem to have the most relevance for teaching economics at the college level, and to offer some suggestions as to how these findings might be used to help your students learn more about economics.

OBJECTIVES

COGNITIVE OBJECTIVES

After reading this chapter you will be able to:

1. Identify the three major "schools" of learning theory in modern psychology.
2. State three general propositions about human learning that are agreed upon by most psychologists today.
3. List two things that you might do to increase the motivation of your students.
4. List two things that you might do to help your students acquire new knowledge.

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* Margaret J. Peterson provided several helpful comments on an earlier version of this chapter. She is in no way responsible for any problems that remain in the present version.

(Objectives continued)

5. List two things that you might do to help your students retain what they have learned.
6. Explain in your own words why emphasizing underlying concepts rather than calculating rules may help your students transfer problem solving skills to new situations.
7. Restate in your own words the currently accepted explanation of why visual aids can be a powerful adjunct to your verbal presentations in helping your students remember important points.
8. Restate in your own words the reason why lecturers are encouraged to make their main points at the beginning and/or the end, instead of the middle of their presentation.

AFFECTIVE OBJECTIVES

After reading this chapter it is intended that you will value the importance of adapting your teaching methods to what is known about human learning, and respond by specifically employing at least three things suggested in this chapter in your next teaching situation.

OUTLINE OF MAIN POINTS

- What is Meant by Learning?
- Major "Schools" of Learning Theory
    - The Stimulus-Response School
    - The Cognitive-Structuralist School
    - The Information Processing School
- Some Generally Accepted Propositions
    - Limited Capacity to Process Information
    - Importance of Prior Experience or "Learning Set"
    - Importance of Motivation
- Acquisition
    - Advanced Organizers
    - Mode of Presentation
    - Feedback or Knowledge of Results
    - Recitation or Verbalization
    - Guidance
- Retention
    - Degree of Initial Learning
    - Repetition and Review
    - Serial Position Effect
    - Priming or Cueing
    - Imagery Techniques
- Transfer
    - Stress on Underlying Principles
    - Concepts vs Rules
- Summary
- Do's and Dont's
- References
- Exercise

LEARNING THEORY

Psychologists, like economists, place a very high regard on "pure" as opposed to "applied" theory. They have, therefore, attempted to develop "principles" of learning at the highest possible levels of abstraction without much concern for classroom applications. The quest for rigorous "scientific" controls has also limited much learning theory research animals or, if humans are involved, to somewhat contrived learning exercises in laboratory situations usually involving lists of words or non-word combinations of consonants and vowels. In the 1969 Annual Review of Psychology, Gagné and Rohwer stated: "Remoteness of applicability to instruction, we note with some regret, characterizes many studies of human learning, retention and transfer, appearing in the most prestigious of psychological journals." [1]

Since that time there have been an increasing number of attempts to apply traditional laboratory findings to more typical human learning situations with somewhat discouraging results. In the 1974 Annual Review of Psychology Wilbert J. McKeachie noted:

> "The past 2 years have been bad ones for those of us who attempt to apply traditional principles of learning to instruction. . .
>
> . . .what we psychologists took to be verities are principles that hold only under limited conditions. . .
>
> . . .those principles apply most clearly to learning nonsense syllables or to the learning of animals in artificial situations. Meaningful learning is both more robust and more complex. . .
>
> . . .attempts at application have forced us to confront the need for ways of classifying tasks and situations if we are to generalize from laboratory findings to other situations. [2]

In addition to the problems of generalizing from the laboratory to the classroom, there is not yet a single, generally accepted "theory" of learning to guide the learning experiments in modern psychology. Despite these difficulties, however, there is enough agreement among the competing theories and experimental results to help identify some important variables and influences in the learning process and to provide some useful suggestions for helping college students learn economics.

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[1] Robert M. Gagné and William D. Rohwer, Jr., "Instructional Psychology", Annual Review of Psychology (Palo Alto: Annual Reviews, Inc., 1969), p. 381.

[2] Wilbert J. McKeachie, "Instructional Psychology", Annual Review of Psychology (Palo Alto: Annual Reviews, Inc., 1974), pp. 186-87.

After offering a definition of learning and briefly describing the major "schools" of learning theory today, this chapter will discuss some generally accepted propositions about human learning, and offer some suggestions about how we might improve the acquisition, retention, and transfer of knowledge by our students.

WHAT IS MEANT BY LEARNING?

For the most part, definitions are neither right nor wrong, but they can be useful or not useful in any given situation. While admitting the possibility and usefulness of many other definitions of the learning process, I offer the following: Learning is the acquisition and retention of knowledge and habits of thought in a way that permits them to be employed in a useful way after the initial exposure has been terminated. Learning in this sense takes place when we gain an understanding of a process, situation, fact or thing that we did not previously possess and when we can retain this understanding in a manner that permits us to apply it to new situations. Basically, this definition contains three elements: acquisition, retention and transfer. (We should probably also add a fourth element--evaluation, or some internal intellectual mechanism of checking to see if we have used our knowledge in a sensible way by judging whether or not we have made an appropriate response or behaved in a plausible manner).

Gagné has identified and described five major categories of learning outcomes which he labels: motor skills; verbal information; intellectual skills; cognitive strategies; and attitudes. And he states: "Not only do these differ in the human performances they make possible; they also differ in the conditions most favorable to their learning". [3]

If it is true that there are different types of learning, it may not be possible to develop a single learning theory that effectively encompasses all of the different varieties of learning. Further, the work of the Swiss psychologist Jean Piaget indicates that humans move through different stages of intellectual development wherein the modes of thinking are distinctly different.[4] Thus, the task of developing a single theory of human learning that can be applied to all types of learning at all stages of intellectual development is a formidable, if not an impossible, one. To date, no such theory has emerged.

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[3] Robert M. Gagné, The Conditions of Learning, 3rd ed (New York: Holt, Rinehart and Winston, 1977), p. 48.

MAJOR "SCHOOLS" OF LEARNING THEORY

Two major "schools" of learning theories in modern psychology can be labeled the "stimulus-response" theories and the "cognitive-structuralist" theories. And, in recent years, an "information processing" approach to learning has emerged.

The Stimulus-Response School. This school focuses on learning as the reinforcement of associations between overt stimuli and responses, and there is a strong emphasis on the direct observation of overt behavior. The terms "associationists" and "behaviorists" are sometimes used to represent the psychologists who emphasize this approach to learning. Teaching machines and programmed learning are instructional devices stemming from this school, and B. F. Skinner is its most prominent current spokesman.[5] These techniques are designed to reinforce or reward students for making the correct response (answer) to each stimulus (question).

4/ Although he regards the ages as only approximations, Piaget has labeled his stages of intellectual development as: sensorimotor (birth to 2 years); preoperational (2-7 years); concrete operational (7-11 years); and formal operational (11 years and older).

Piaget's ideas have been very influential. In the fourth edition of their book, Theories of Learning (Prentice-Hall, 1975), Hilgard and Bower state: "Piaget's theory of stages calls attention strongly to new ways of dealing with problems as the child develops. This conception has gradually been forced upon those who began with other orientations, and some sort of hierarchical categorization of learning tasks and of learning abilities is now common." (p. 344)

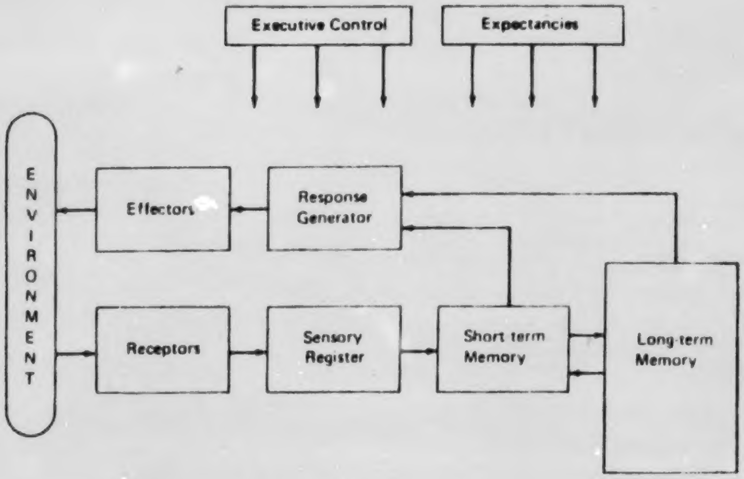
For more information on Piaget's ideas, see Herbert Ginsburg and Sylvia Opper, Piaget's Theory of Intellectual Development: An Introduction (Englewood Cliffs: Prentice-Hall, 1969).

5/ B. F. Skinner, The Technology of Teaching (New York: Appleton-Century-Crofts, 1968).

The Cognitive-Structuralist School. This school stems from the experiments of the German psychologist Wolfgang Kohler with chimpanzees who learned to stack boxes and use short sticks to rake in long sticks so that they could obtain food that was otherwise out of their reach. This school emphasizes the introspective rearrangement of previous ideas and experience into new patterns of thought, and focuses on learning as "insight" or the perception of new relationships. The terms "gestalt" (the german word for configuration) and "field" theorists are sometimes used to represent the psychologists who emphasize this approach to learning. The discovery method of instruction stems from this school of learning theory, and Jerome Brunner is a prominent current spokesman.[6]

The Information Processing School. While stimulus-response and cognitive-structuralist theories do not agree about what goes on in a person's mind when something is "learned", neither has a very elaborate approach to the internal processing involved when compared to more recent learning theories based on formulations from computer science, linguistics, and attempts to represent the learning process by mathematical equations. These newer "information processing" theories propose a very elaborate set of internal processes, transformations, and structures to account for the events of human learning, and they imply that several distinct phases of processing occur during a single act of learning.

Figure 1
Information Processing Model



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[6] Jerome S. Bruner, Toward a Theory of Instruction (Cambridge: Belknap Press, 1966).

A good recent example of an attempt to summarize and apply the information processing view of learning to the problems of instruction is provided by Robert M. Gagné in the 1977 (3rd) edition of his book, The Conditions of Learning. Figure 1 is reproduced from page 53 of this book. Using underlining to refer to structures and quotations to refer to "processes", my very condensed summary of Gagné's explanation of this figure is contained in the next two paragraphs.

The lower parts of Figure 1 indicate that information received from the environment is transformed into neural information by receptors and entered into the sensory register where a process of "selective perception" either allows it to die or, if it is attended to, be transformed into a new kind of input into the short term memory. The transformed information can persist in short-term memory for only a limited period (perhaps up to 20 seconds), but this interval can be extended by a process of silent mental repetition called "rehearsal". Rehearsal may also aid the "encoding" of information for input into the long term memory. Encoding is a process of meaningful organization which permits the information to be stored in long term memory. Once stored in long term memory, we say that information is "learned" if it can be retrieved and returned to the short term memory or used to activate a response generator. Information retrieved from the long term memory into the short term memory can be combined with other inputs to form new encodings for long term memory or to activate a response generator. Once a response generator has been activated, some sort of performance is effected that can be observed externally and used to verify that learning has occurred.

The top parts of Figure 1 labelled "executive control" and "expectancies" are used to represent aspects of previous learning that are capable of affecting any or all of the phases of the information flow depicted in the lower parts of the figure. Since executive control and expectancies are the result of previous learning, they can be viewed as separate portions of long term memory that are different from simple information storage. Control processes and expectancies are crucial parts of the learning process in determining how the attention of the learner is directed, how the information is encoded, how it is retrieved, and how it is expressed in organized responses.

From the standpoint of learning, the most important phase of information processing is the encoding that meaningfully organizes the material passing from short term memory to long term memory. Gagné notes:

> . . . many forms are taken by the process of encoding. What is learned may be encoded in meaningful verbal units like sentences or perhaps even more comprehensive units. Encoding processes may take the form of tables, spatially arranged matrices, diagrams, or detailed images or 'pictures', of the information being learned. 7/

SOME GENERALLY ACCEPTED PROPOSITIONS

Despite their different conceptions of the basic learning process, there are some things that are generally accepted by most psychologists today with only relatively minor reservations. Fortunately, several of these generally accepted propositions have implications for helping college students learn economics. Unfortunately, not all of these implications have been empirically tested and verified to the extent one would like.

Limited Capacity to Process Information. The limited capacity of the human mind to process information has been recognized for a long time. McKeachie has quoted the Moravian bishop and educational reformer Comenius (1592-1620) as stating:

> If we take a jar with a narrow mouth, for to this we may compare a boy's intellect, and attempt to pour a quantity of water into it violently, instead of allowing it to trickle in drop by drop what will be the result? Without doubt, the greater part of the liquid will flow over the side, and ultimately the jar will contain less than if the operation had taken place gradually. Quite as foolish is the action of those who try to teach the pupils, not as much as they can assimilate, but as much as they themselves wish. 8/

Some 300 years after Comenius made the preceeding observation in his Great Didactic, the German-Swedish psychologist David Katz coined the term "mental dazzle" as a result of several experiments demonstraing that, beyond a certain point, adding elements in an intellectual task causes confusion and inefficiency. And in 1956 G. A. Miller published an important paper

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7/ Gagné, op cit, p. 55

8/ Wilbert J. McKeachie, "Research on Teaching at the College and University Level", in N. L. Gage (ed), Handbook of Research on Teaching (Chicago: Rand-McNally, 1963), p. 1120.

indicating that the number of 'chunks' of independent information that an adult can keep in mind at the same time is about seven. 9/ These 'chunks' can vary in complexity, but the basic limitation now appears to be due to the relatively fragile nature of short term or conscious memory compared to long term memory. Unlike long term memory, which has a relatively unlimited storage capacity for "encoded" or meaningful information, new items entering the short term memory "push out" old items once the limited capacity of short term memory has been reached. While the process of "rehearsal" mentioned above can extend the time interval that information can be stored in short term memory, and while rehearsal may also aid in meaningfully encoding information for input into long term memory, the number of items stored in short term memory is not increased by rehearsal. "Overloading" short term memory, therefore, interferes with meaningful learning and long term memory.

The implications of the evidence on the limited capacity of the mind to process information are clear, even if they are difficult to follow. As teachers, we must constantly resist pressure to "cover the field" -- particularly in introductory courses. It is not what the instructor "covers", but what the student learns that counts. Rather than dragging or pushing our students on a roller skate tour through the 30-, 40-, or perhaps even 50-room mansion of our discipline, everyone might be better off if we spend more time examining the foundations on which the whole superstructure rests. We should force ourselves to settle for a few things (the most important things) done well, rather than try to "cover the waterfront" in a manner that all, or most is washed away by the tides that sweep through the lives of students after the final exam has been completed. Before outlining our courses or, indeed, before each class meeting we should ask ourselves: "What will the student learn today that will make a difference in his or her life five years or more from now?" An indication of how difficult it may be to follow this advice is given by the fact that the following statement appeared in the American Economic

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9/ G. A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information", Psychological Review. Vol. 63, No. 2, 1956, pp. 81-97.

Review in 1950! ". . . the content of the elementary course has expanded beyond all possibility of adequate comprehension and assimilation by a student in one year of three class hours a week".[10] Why we haven't made much progress in reducing the content of the elementary course is also suggested in the same report: ". . . the fundamental error in current practice in the teaching of the first course in economics can be summarized in one word -- "indecision".[11] Hopefully, some of the material on course content in Chapter 2 of this Manual and the material in Chapter 4 on instructional objectives will help you reduce the indecision involved in dealing with this crucial issue in your own courses.

Importance of Prior Experience or "Learning Set". There is now a general recognition of the hierarchial arrangement of thought, and the importance of prior experience and current knowledge in establishing a student's "learning set". Whether prior learning is viewed as reinforced associations, configurations in the mind, or information stored in long term memory, it is important that the demands we make on our students are not so unrelated to their prior experience that they are impossible to achieve.

Since most student's current knowledge and prior experience are likely to be different from those of the instructor, we must be careful not to assume that the information that we give them will be interpreted and mentally filed away in the same way that it is stored in our own minds. Much that is "obvious" to the instructor may be incomprehensible or meaningless to the uninitiated student because of differences in assumption, gaps in knowledge, and other differences in the "learning set".

The notion of "set" argues strongly for pre-testing, so that we can get a better idea of where the students are before we attempt to take them someplace else. This is particularly true in economics where terms like "demand", and "investment" are given precise meanings that are often at variance with what non-economists "know" these terms mean.

Ruth Beard gives an interesting example of the powerful influence of set with the illustration shown in Figure 2.

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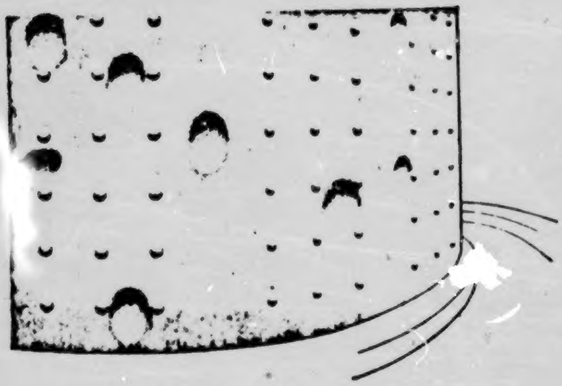
[10] "The Teaching of Undergraduate Economics: Report of the Committee on the Undergraduate Teaching of Economics and the Training of Economists", American Economic Review: Supplement, Vol. 40, No. 5, Part 2, December 1950, p. 56.

[11] Ibid, p. 56.

Figure 2



With regard to this figure, Beard notes:

> Figure 2 represents a section of a ship's boiler riveted in the usual way but also having indentations due to gun-fire. If the reader turns it upside down he will find that the rivets have now become indentations while the gun-fire indentations appear as protuberances. This is because he has been accustomed all his life to a world in which light comes from above. If he had been handed the picture upside down it would probably not have occurred to him to reverse it; he would simply have accepted his natural, but erroneous, interpretation of it. A doctor whose interpretation of X-rays would be seriously affected by an error, or a space traveller whose multi-directional movements extend his experience so that light may reach him from any direction, would probably display more caution interpreting the picture. This tendency to interpret events in accordance with past experience is termed 'set'. 12/

Getting on the same "wave length" by establishing a common "set" before starting on new material is an important point to remember, and Beard notes: "people differ in their capacity to relinquish 'sets', some doing so fairly readily, whereas others will distort information they receive, forcing it to fit familiar interpretation until the weight of contradictions obliges them to change." 13/ Anyone who has dealt with people who "know" that the value of money is determined by its gold backing, that "investment" is buying a share of common stock, etc., etc.

12/ Ruth Beard, Teaching and Learning in Higher Education, 2nd Ed., (Baltimore: Penguin Books, 1972), p. 74.

13/ *Ibid*, p. 74

will appreciate the truth of this statement. In some cases we may have to devote some time to overcoming erroneous interpretations and getting peoples minds "up" to zero, before we can begin getting them to accept new ways of looking at things. Whenever possible, therefore, we should use pre-tests to establish where our students are with respect to the learning set we want to establish. Nothing is more frustrating to a student than to be "completely in the dark." Students are unlikely to understand or retain material that is not meaningful, and new material is meaningful only if it fits in with what an individual already knows.

In addition to using pre-test, we should also attempt to apply the following traditional "rules" of sequence in our teaching: (a) proceed from the known to the unknown; (b) proceed from the simple to the complex; (c) proceed from the concrete to the abstract; (d) proceed from observation to reasoning; (e) proceed from a whole view to a more detailed view to a whole view.[14/] All of these sequences attempt to make new material more meaningful in terms of the students' existing learning set. And, as indicated below, material learned in a meaningful learning set is more easily transferred to new situations than is material learned by rote.

Importance of Motivation. The learner's motivation is a crucial variable in determining how much people learn. Interest in the material to be learned and an "intent to learn" are powerful motivating factors, and the desire for self-esteem and the stimulation or satisfaction of curiosity are motivations that can also be used in the college classroom. There is also some support for the proposition that a perceived usefulness of the material or, even better, an ability to use it, stimulates student interest and intent to learn. While it is no doubt true that not all students are deeply interested in everything their teachers want them to learn, there appears to be no reason for assuming that student motives are fixed. Before we point too many fingers at uninspired students, let us first ask ourselves: "What have we done to interest them in our courses?" Beyond attempting to demonstrate the usefulness of our material to our students, we should also recognize that there is some hard evidence pointing to the value of an enthusiastic teacher in generating interest in a subject. Along with a host of other studies on this point, Thistlewaite has reported

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14/ Ivor K. Davies, "Task Analysis in Economics" mimeographed paper prepared for the 1973 Conference for Instructors of College Economics outlined in Appendix I.

that National Merit scholars consider instructor enthusiasm to have been one of the critical variables influencing their choice of a field. [15] Mastin found that 19 of 20 classes scored higher on a multiple choice exam after an "enthusiastic" presentation than after an "indifferent" presentation of material on ancient Egypt and ancient Rome and Pompeii [16], and Coats and Smidchens found sizable differences in immediate recall of lecture material on classroom interaction analysis when the lecture was delivered with "dynamism" (vocal inflection, gesturing, eye contact and animation) as compared to when the same lecture was read with good diction and sufficient volume. [17]

With respect to "intent to learn" as a motivating device, an early study by Myers asked students to count the number of zeroes distributed among letters printed in color on colored paper. Later, the students were asked questions about what other letters were present and about the color of the paper and the letters. Their poor answers to these questions indicated that they had not learned much of the material to which they had been exposed but not explicitly told to learn.[18] There have been several subsequent studies indicating the superiority of "intentional" learning; and Dressel and Mayhew have shown that even "critical thinking" can be significantly increased when it is taken as a primary objective by students.[19] If we can generalize from such studies, carefully worded instructions, homework exercises, and exam questions can be used to encourage students to learn those aspects of our subjects we most want them to learn. The teacher who tests on the memorization of details, for example, encourages students to memorize details. But, if the students believe that their grades are going to be based on their ability to integrate and apply principles, they will be motivated to acquire such ability.

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[15] L. Thistlewaite, College Press and Changes in Study Plans of Talented Students (Evanston: National Merit Scholarship Corp., 1960).

[16] V. E. Mastin, "Teacher Enthusiasm", Journal of Educational Research, Vol. 56, No. 7, pp. 385-6.

[17] W. D. Coats and U. Smidchens, "Audience Recall as a Function of Speaker Dynamism", Journal of Educational Psychology, Vol. 7, No. 4, 1966 pp. 189-91.

[18] Garry C. Myers, "A Study In Incidental Memory", Archives of Psychology, No. 26, February 1913.

[19] Paul L. Dressel and Lewis B. Mayhew, General Education: Explorations in Evaluation (Washington: American Council on Education, 1954).

With regard to students' self esteem, it often helps a great deal if instructors learn and use their names as soon as possible. The use of students' names indicates that you take an interest in them and that they "belong" in your classroom. Self esteem is also closely related to experiencing success and avoiding failure with respect to one's level of aspiration. The German psychologist F. Hoppe noted that a person tends to raise his or her goals after success and to lower them after failure. This process prevents one from continual failure or from too easy achievement, neither of which provides a feeling of accomplishment. An important motivating role for an instructor, therefore, is to help students set goals for themselves that are "challenging but attainable", and we should try to keep our instruction within the range of students' ability to deal with it without making it either too difficult or too easy. For students whose "motive to achieve success is stronger than their motive to avoid failure", Atkinson and Litwin found that they were "most attracted to tasks of intermediate difficulty where the subjective probability of success is .50. Here the resultant positive motivation is strongest".[20]

Similar to Atkinson and Litwin's finding that motivation may be highest in situations of moderate difficulty are Berlyne's indications that curiosity is highest in situation of moderate novelty. Berlyne contends that the interplay between the familiar and the novel is a significant factor in the development of curiosity, and he has stated:

> Our theory of curiosity implies that patterns will be most curiosity-arousing at an intermediate stage of familiarity. If they are too unlike anything with which the subject is acquainted, the symbolic response tendencies aroused will be too few and too feeble to provide much conflict, while too much familiarity will have removed conflict by making the particular combination an expected one.[21]

Berlyne has also emphasized the "curiosity-inducing role of questions" and has defined "epistemic curiosity" as "a drive which is aroused by a question and reduced by rehearsing its answer".[22] He found that using a pre-questionnaire aroused curiosity and increased the probability of college students recalling factual statements about animals. Statements recognized as answers to questions on the pre-questionnaire were more likely than others to be recalled on a post-questionnaire, and "surprising" statements were more likely to be recalled as answers on the post-questionnaire than others.[23/]

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[20] John W. Atkinson and George H. Litwin, "Achievement Motive and Test Anxiety Conceived As Motive to Approach Success and Motive to Avoid Failure", Journal of Abnormal and Social Psychology, Vol. 60, No. 1, 1960, p. 52.

[21] D. E. Berlyne, "A Theory of Human Curiosity", British Journal of Psychology, Vol. 45, Part 3, 1954, p. 189.

[22] D. E. Berlyne, "An Experimental Study of Human Curiosity", British Journal of Psychology, Vol 45, Part 4, 1954, p. 256.

Somewhat related to Berlyne's results with pre-questionnaires are the results of a number of studies that indicate that the insertion of questions in written prose materials facilitates learning. Rather than explaining these results in terms of curiosity, however, Rothkopf has hypothesized that inserted questions give rise to "inspective behavior" or "mathemagenic activities" which "give birth to learning".[24/] In this connection, Watts and Anderson have found that inserted questions requiring application of principles to new examples were more effective than questions simply involving recall, and they argued that:

> "answering application questions facilitates later performance by encouraging students to process the content of the instruction more thoroughly, in fact to transform it, in the effort to apply it in a new situation".[25/]

Given these generally accepted principles on the limited capacity of the human mind, the importance of prior experience or learning "set", and the importance of motivation, and returning to the three elements of our definition of learning, there is some evidence that the things that promote acquisition also facilitate retention and, to a lesser extent, transfer. Nevertheless, there is probably an expository advantage in discussing each of these elements separately.

[23/] Ibid, p. 265. Frick and Cofer later repeated the Berlyne study with a better control on the test items and obtained the same results in: J. W. Frick and C. N. Cofer, "Berlyne's Demonstration of Epistemic Curiosity: An Experimental Re-Evaluation", British Journal of Psychology, Vol. 63, Part 2, 1972, pp. 221-28.

[24/] E. Z. Rothkopf, "Some Theoretical and Experimental Approaches to Problems in Written Instruction" in J. D. Krumboltz (ed) Learning and the Educational Process (Chicago: Rand-McNally 1965) pp. 193-221, and E. Z. Rothkopf, "The Concept of Mathamagenic Activities", Review of Educational Research, Vol. 40, No. 3, 1970, pp. 325-336.

[25/] G. H. Watts and R. C. Anderson, "Effects of Three Types of Inserted Questions On Learning From Prose", Journal of Educational Psychology, Vol. 62, No. 5, 1971, p. 393.

ACQUISITION

As indicated by some of the comments above on the importance of an "intent to learn" as a motivating device, one of the most useful things that we can do to help our students acquire new knowledge is to let them know exactly what it is that they are supposed to learn. Ausubel, in particular, has argued that providing students with "advanced organizers" facilitates the learning of meaningful verbal material.[26] These "organizers" are usually brief written passages which the students are supposed to read before studying new material, and they are designed to compare and contrast the new material with what the student already knows in order to provide "ideational scaffolding" to help students integrate new material into their existing "cognitive structure". A series of experiments involving material on Buddhism, endocrinology, and interpretations of the Civil War have supported the effectiveness of advanced organizers, and Anderson's experiment with a unit on supply and demand in college introductory economics classes found:

> "Organizing concepts placed immediately prior (preorganizers) to a learning unit result in significantly better retention of the concepts involved than is the case where organizing concepts are positioned following a learning unit (postorganizer).[27]

The recent studies of the advantages of advanced organizers in classroom learning are consistent with earlier laboratory experiments that emphasized the importance of the "meaningfulness" of items in verbal word lists. Meaningfulness has traditionally been described in terms of the number of associations stimulated or the amount of "structure" that can be imposed on new material, and there is considerable evidence that initial instructions, elaboration directions, and suggested mnemonic devices can have a strong influence on rote memory tasks. Encouragement of "mental imagery", in particular, has been found to be a very useful memory device, and we will have more to say on this point in the section on retention below. Not all mnemonic devices involve mental imagery, however, and most of us are aware of the advantages of remembering the months of the year that have a particular number of days by citing the rhyme, "Thirty days hath September, April, June and November, . . ." or recalling rules governing the placement of "i" and "e" by citing, "'i' before 'e' except after 'c', or when sounded like 'a' as in neighbor and weigh."

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[26] D. P. Ausubel, The Psychology of Meaningful Verbal Learning (New York: Grune & Stratton, 1963) and Educational Psychology: A Cognitive View (New York: Holt, Rinehart & Winston, 1968)

[27] B. W. Anderson, "A Comparison of Pre- Versus Postorganizers Upon Retention of Economic Concepts", Journal of Economic Education, Vol. 6, No. 1, 1974, p. 63.

Since much knowledge in economics tends to be cumulative, and since some rote learning of new terms is necessary for later retention and transfer, any mnemonic devices that we can give students at the acquisition stage should prove helpful, in part because they tend to concretize (thereby making more familiar) the abstract terms or concepts they signify. Writing out " Inelastic" and "E⟵lastic" in this manner, for example, has proven helpful to many beginning students and beginning instructors alike.[28]

With regard to the influence of the mode of presentation in helping students acquire new learning, Gagné and Rohwer have stated:

> "Where there is a choice of method for presenting equivalent information, the following results prevail: pictorial materials are superior to verbal; concrete verbal materials are preferable to abstract verbal; and grammatically structured are better than unstructured".[29]

Once material has been presented and students have tried to learn it, "feedback", or "knowledge of results" has long been regarded as a powerful aid to learning, and there is a considerable body of laboratory evidence indicating the advantage of active as opposed to passive learning and the importance of recitation or verbalization in memorizing word lists. Unsuccessful attempts to slavishly apply these findings to the construction of learning programs or "teaching machines", however, indicate that there can be too much of a good thing, and Anderson has noted: "Rather often programmed instruction research gives results at odds with the results obtained from other media, materials or techniques."[30] In some programs, with low probability of error on each succeeding "frame", knowledge of results may not really convey much information; and, if the responses required are not relevant to the crucial content, requiring active responses may actually disrupt thoughtful reading habits.

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[28] For a very useful analysis of a particular mnemonic device, see G.H. Bower, "Analysis of a Mnemonic Device", American Scientist, Vol. 58, Sept. - Oct. 1970, pp. 496-510.

[29] Gagné and Rohwer, op. cit., p. 394.

[30] R.C. Anderson, "Educational Psychology", Annual Review of Psychology (Palo Alto: Annual Reviews, Inc., 1967) p. 137.

With regard to the usefulness of feedback, McKeachie has stated:

> "Knowledge of results, I would aver, is important for learning when the knowledge provides information and the learner knows how to correct his behavior; it doesn't make much difference if the learner already has a pretty good idea of how well he has done or doesn't know what to do differently."[31]

And, with regard to the usefulness of active responses, Anderson has stated:

> "Requiring an overt response from students is helpful only if the response is relevant to what is to be learned . . . When a lesson entails technical language or foreign vocabulary, for instance, response learning becomes more important . . . Clearly, an overt, constructed response should be required from a student if he is expected to be able to emit an unfamiliar, technical term . . . overt responding works best with difficult, unfamiliar material."[32]

Given the nature of most economics courses taught in U.S. colleages and universities today, these comments indicate that we should give our students every opportunity to "respond" and "get involved" by having them complete homework problems and other assignments that are carefully graded and promptly returned with constructive comments and suggestions for improvement. There is some long standing evidence that reward is a stronger inducement to learning than punishment. Hurlock, for example, was one of the first to indicate that students show large and consistent improvement when praised for their performance, but adverse effects when reproved or ignored.[33] So in writing comments on papers,make an effort to find some things that you can praise.

In going over homework problems and/or other examples in class, one should also be aware of the principles of "guidance". On this point Hovland has stated:

> "Guidance given early apparently helps to establish the correct habits right from the start. Since, however, the learner will later have to perform the task without help, guidance must not continue too long, for the learner may become overly dependent upon outside assistance."[34]

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[31] McKeachie, op. cit., p. 186.

[32] R.C. Anderson, op. cit., pp. 139-141.

[33] Elizabeth B. Hurlock, "An Evaluation of Certain Incentives Used in School Work," Journal of Educational Psychology, Vol. 16, No. 3, pp. 145-159.

[34] Carl I. Hovland, "Human Learning and Retention" in S.S. Stevens (ed.), Handbook of Experimental Psychology (New York: John Wiley and Sons, 1951), pp. 613-689.

Although Hovland's observation was not based on the teaching of academic subjects in the college classroom, it suggests that, after the student has a broad overview and sense of perspective on the entire course, perhaps a "lecture--work example--let student work a different example" sequence may be useful in the early stages until the student has accumulated enough "tools" to work for himself. But at a later stage of the course it is probably important to put students in problem-solving situations on their own. At this stage, we must develop patience and resist the temptation to "tell them the answer." We must let them mull it over and work it out for themselves. Indeed, in a very good summary of the major findings on "guidance" G.L. Bach has noted:

> ". . . there appear to be several reasonable and well-established propositions. These include:
>
> The more highly the learner is motivated, the less teacher guidance is required.
>
> The more complex the learning situation, the more valuable is instructor guidance.
>
> More teacher guidance is generally valuable in the early stages of complex learning process and is decreasingly so in later stages as students are able to do more independent learning.
>
> Excessive teacher guidance, in the form of lecturing or otherwise telling people what to do, tends to violate the principles of feedback, which involves having students do something for themselves and then telling them how they have done in terms of results.35/

In addition to homework problems and other learning exercises, most formal feedback in college economics courses is provided by comments on exams and exam grades. If examinations are carefully designed to measure attainment of previously indicated course objectives, there is a strong case to be made for using "criterion referenced" grading schemes that indicate how well each student has done with respect to mastering the objectives rather than using "norm referenced" grading schemes that compare the performance of students to each other. In a study with high school mathematics students, Pack found that use of a criterion referenced test rather than a norm referenced test produced more favorable student attitudes toward the subject

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35/ G.L. Bach, "What Should A Principles Course in Economics Be?" in Larsen & Nappi (eds.) Goals and Objectives in the Introductory College Level Course in Economics (Minneapolis: Federal Reserve Bank of Minneapolis, 1976), pp. 16-17.

matter of computer arithmetic.[36]

RETENTION

As has been indicated previously, the things that promote acquisition also promote retention of new knowledge. Indeed, one can not remember what one has not learned in the first place, and most tests of acquisition require the use of memory. The single most important thing in retention, therefore, is the *degree of initial learning*. Material learned by rote is not remembered as well as "meaningful" or "organized" material, and material that is used and applied is remembered much better than material that is not. In addition to an emphasis on organization, structure, and application in their initial presentations, therefore, classroom teachers can also use *repetition* and *review* to combat disuse of important ideas and concepts. In this connection, studies of verbal learning have found that "*overlearning*" -- or learning beyond simple mastery -- aids retention. Since getting students to the point of simple mastery is a difficult task in itself, this finding might not seem like much of a help. Yet it is probably related to the common statement among graduate students, who have just passed their qualifying exams and begun to teach at the introductory level, that only when they tried to teach their subject to others did they *really* begin to understand what it was all about themselves. Perhaps similar experiences can be provided in briefer and simpler form at the undergraduate level by having students give class reports or summaries of term papers. Such practices may help to induce overlearning in key areas carefully selected for these purposes.

The forgetting of material that is not used or applied has usually been explained by "decay" or "displacement". In addition, "interference theory" has also been invoked by psychologists to explain the often observed "*serial position effect*" that material presented in the middle of a sequence is not remembered as well as material presented at the beginning or at the end of a sequence. This observation can be explained as due to interference from other material in the sequence. Interference from material presented earlier is called "proactive interference," and interference from material presented later is called "retroactive interference." Material presented first in a sequence is subject only to retroactive interference. Material presented last in a sequence is subject only to proactive interference. But material presented in the middle is subject to both kinds of interference. The implication of this for classroom lectures is clear. It is important to make your major points at the beginning and/or at the end of your presentation and not bury them in the middle.

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[36] E.C. Pack, "The Effects of Testing Upon Attitude Towards the Method and Content of Instruction", *Journal of Educational Measurement*, Vol. [illegible], No. 2, 1972, pp. 141-144.

In addition to decay, displacement, and interference, the information processing approach to learning has focused on still another approach to forgetting which can be called "cue dependent forgetting" to deal with situations in which the information sought for is available in the long term memory store but is inaccessable because of inadequate retrieval cues. There is some evidence that "priming" can stimulate relevant recall, presumably by activating otherwise dormant retrieval cues. A study by Johnson, for example, indicated the efficacy of priming in stimulating relevant recall when a group of high school seniors who had completed a unit in a physics course were given the task of solving ten problems. Half of the students were given a two minute word association pretest in which the stimulus words named concepts necessary for the solution of the subsequent problems. A significantly larger number of problem solutions were attained by the group given the prior association test than by the unprimed group.[37/]

Recalling the comments on "guidance" above, however, one should not overly rely on priming or prompting if one wants students to develop methods of recalling material on their own. Anderson, Faust, and Roderick, for example, compared a heavily prompted version of an instructional program with a standard version and found that students made higher achievement scores with the latter version. So overprompting can lead to a reduction in learning effectiveness.[38/]

Another important finding with regard to retention which has strong implications for the mode of presenting material is the clear superiority of "imagery techniques" in facilitating recall of word lists. Hilgard and Bower note: "A large number of learning experiments have now been done indicating

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[37/] P.E. Johnson, "Word Relatedness and Problem Solving in High School Physics", Journal of Educational Psychology, Vol. 56, No. 4, 1965, pp. 217-24.

[38/] R.C. Anderson, G.W. Faust, and M.C. Roderick, "Overprompting in Programmed Instruction", Journal of Educational Psychology, Vol. 59, No. 2, 1968, pp. 88-93.

that imaginal and/or pictorial representations of information usually facilitate memory, by factors ranging from 1.5 to 3 or so."[39] In trying to explain why imagery works, Paivio has proposed a "two process theory of associative meaning" in which verbal information and visual information are processed or "coded" differently; and he argues that only verbal codes can be employed for abstract words whereas both visual and verbal codes can be employed for concrete words and pictures.[40] And, in answer to their question "Why are pictures, then images, and then concrete words remembered in that order, with all remembered so much better than abstract words?", Hilgard and Bower state:

> The current conjecture is what is called the "dual trace" hypothesis . . . So a word (or word pair) that is imaged or a picture that is named has the advantage of having two redundant copies of the memory trace laid down. The redundancy prolongs memory in comparison to abstract items, since the second, imaginal trace is likely to survive after the initial, verbal trace has decayed. That is, not only are there two traces, but the one in the imaginal system seems more resistant to forgetting.[41]

This clearly implies that visual aids in the classroom are much more than a "gimmick". Carefully planned use of visual aids can be a valuable aid to student learning and retention. Not only do they add novelty and variation to our presentations, they also can add a concrete visual dimension to our verbal communications.

TRANSFER

Transfer of learning from one situation to another is sometimes referred to as "learning to learn". From a very early date, verbal learning experiments have indicated that the transfer of learning involves more than repetitive practice of the initial learning exercise. Indeed, without overt stress on underlying principles, most learning habits are apparently highly specific to the situation in which they are practiced. With regard to memory training, the experience of William James is often cited in support of this point.[42] After memorizing the first part of a poem by Hugo, he then practiced memorizing a poem by Milton. But, upon returning to memorizing the last part of Hugo's poem, James found that it was no easier, and indeed it took him longer to memorize the second 158 lines of the "Satyr" than it did the first 158 lines. He concluded that this sort of practice did not result in any general improvement in memorizing ability. Later, Woodrow reasoned that, if subjects were given systematic instruction in how to memorize, the improvement would have been more marked. Accordingly, he set up a study for two experimental groups and one control group. One group devoted itself to intensive memorizing of poetry and nonsense syllables. The second group spent the same amount of time but divided it between receiving instruction in good methods of memorizing and performing exercises in using these methods. The group that spent all the time in practice performed little better than the control group on subsequent memory tests, but the group given instruction in methods of efficient memory showed marked improvement.[43]

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[39] E. R. Hilgard and G. H. Bower, Theories of Learning, Fourth Edition (Englewood Cliffs: Prentice-Hall, 1975), p. 588.

[40] A. Paivio, "Mental Imagery in Associative Learning and Memory", Psychological Review, Vol. 76, No. 3, 1969, pp. 241-63. Paivio later elaborated his ideas more fully in his book Imagery and Verbal Processes (New York: Holt, Rinehart and Winston, 1971).

[41] E. R. Hilgard and G. H. Bower, op. cit., p. 589. Bower has also offered an excellent, brief discussion of dual processing systems in non-technical terms in the latter part of his "Analysis of a Mnemonic Device", op. cit.

Going beyond simple memory work, another pair of early studies indicated that in one situation in which an arithmetic teacher stressed neatness in the papers handed in by students, a gradual improvement was noted in the neatness of these papers, but no transfer was found with respect to the neatness of papers turned in by these students in other subjects.[44] When the experiment was repeated with another group of students, however, the teacher who emphasized neatness in arithmetic also stressed the general importance of neatness in dress, business, and the home. Under these conditions, improvement was obtained in the neatness of papers, not only in arithmetic, but in other subjects as well.[45]

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[42] William James, The Principles of Psychology, (New York: Holt, 1890).

[43] Herbert Woodrow, "The Effect of the Type of Training Upon Transference," Journal of Educational Psychology, Vol. 18, No. 3, 1927, pp. 159-72.

[44] William C. Bagley, The Educative Process (New York: Macmillan, 1905).

The main point here seems to be that transfer is facilitated when the initial learning can be formulated in terms of general principles applicable to new learning. It offers little support for the doctrine of "mental discipline" *per se*, for there is no evidence that courses in formal logic alone, for example, are likely to make people more logical in other areas. But, if students can learn "what to look for" in solving certain kinds of problems, there is some hope that exposure to a variety of particular problems may lead eventually to a more general problem-solving ability. In a famous experiment involving shooting at targets under water, Judd set up two groups. One group was first taught the principles of light refraction, the other was not. Both groups were then given practice in shooting at submerged targets. By trial and error both groups learned about equally well to adjust for refractive errors. But, when the depth of the target was changed, the group previously taught about refraction learned to correct their aim for the new conditions much faster than did the other group.[46] Katona's experiments with geometric puzzles, card, and match tricks offer further evidence on this point. Transfer of this type of problem-solving ability was tested with different sets of puzzles based on the same general principles. One group was instructed to memorize the solutions to the initial set of puzzles, and was given practice through repetition. The second group was taught the principles involved. A control group received no practice. As in Judd's study, Katona's test results on a different set of puzzles demonstrated the advantage of learning principles.[47]

There is recent evidence that in problem solving situations, teaching underlying principles as concepts rather than as rules facilitates general transfer but may impair retention of specific problem solving rules. Mayer, for example, has reported results where students were taught such diverse problem solving ideas as probability theory, set theory, or computer programming language by two distinct programs called the RULE method and the

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[45] William C. Ruediger, "The Indirect Improvement of Mental Function Through Ideals," *Educational Review*, Vol. 36, November 1908, pp. 364-71.

[46] Charles H. Judd, "The Relation of Special Training to General Intelligence," *Educational Review*, Vol. 36, June 1908, pp. 28-42.

[47] George Katona, *Organizing and Memorizing* (New York: Columbia University, 1940).

CONCEPTS method. The two methods presented the same material and used the same examples, but they were designed to relate the material to different "sets" of prior experience. The RULE method was essentially a "cookbook" approach which presented the main formula and explained each component variable only within the context of how to compute with the formula. As such, it was designed to relate the new information to a very narrow range of experience termed "rote learning set" dealing with calculating using a formula. By contrast, the CONCEPTS method began by trying to encourage the learner to think of past experience with related situations (e.g., the binomial probability situations such as batting averages, chances of rain, etc.) before the RULE information was presented. As such, it was designed to relate the new information to a much richer set of existing knowledge termed "meaningful learning set".

In tests given after the learning programs were completed, Mayer reported:

> RULE learners excelled on problems that were very much like the problems presented in instruction; i.e., near transfer such as calculating binomial probability for a given program or writing a short computer program. On the other hand, CONCEPTS learners excelled on problems that required an extension to new situations; i.e., far transfer such as recognizing when the binomial formula does not apply or how to interpret a computer program and the concept of "looping" programs. This result is consistent with the ideas that CONCEPTS learners developed learning outcomes that restructured the new information and had good connections between new material and existing knowledge while RULE learners developed learning outcomes that involved poor associations with existing knowledge but retained the original structure of the material as presented.48/

These results are consistent with those reported by Gutherie,49/

48/ R. E. Mayer, "How to Teach for Problem Solving Skill and Understanding: An Example with Programmed Instruction", Teaching and Learning at Indiana University, Vol. 1, No. 5, 1975, p. 2.

49/ J. T. Gutherie, "Expository Instruction Versus a Discovery Method," Journal of Educational Psychology, Vol. 58, No. 1, 1967, pp. 45-49. This study dealt with teaching students how to solve letter scrambled cryptograms in four groups: Rule-Example, Example-Rule, Example Only, and a No Training Control Group; it found that instructions with rules and examples facilitated retention but not transfer, whereas training with only examples facilitated transfer but not retention. In Gutherie's own words, "On the retention test, the Rule-Example group was superior to all groups and the other groups did not differ. On the remote transfer test, the Example group was superior to all others, the Example-Rule and No Training groups did not differ, and the Rule-Example group was inferior to all others. All differences were significant at the .05 level. The discovery method appears to facilitate transfer, but not retention; expository instruction facilitates retention, but impedes remote transfer," p. 45.

and they have implications not only for how problem solving material is presented but also for how homework or practice problems are designed. Practice problems that emphasize computation rather than interpretation and application may not only encourage the student to relate the material to a rote learning set rather than a meaningful learning set, they may also have limiting effects on the future study behavior of the student. Mayer states:

> Problems not emphasized in a practice set (or a quiz) are not apt to be attended to in subsequent instruction. Questions emphasizing rote memorization of facts and rules seem to have especially strong limiting effects. COMPUTE-type examples, which are quite common in classroom instruction, signal the learner to relate new information to a narrow learning set and to concentrate on acquiring problem-solving skill. On the contrary, problems that ask learners to interpret activate a much broader set of prior experiences and result in problem-solving understanding. The learner's strategy for attending to future instruction also responds to such cues.[50]

If we want to develop in our students the capacity for meaningful (as opposed to rote) understanding and broad (as opposed to narrow) transfer, we must design our instructions and homework problems accordingly.

SUMMARY

This chapter has attempted to selectively review the results of theoretical and applied experiments in human learning that seem to have implications for teaching college-level economics. We have not touched on the whole area of individual differences among learners, differences in innate ability, differences in cognitive styles, differences in anxiety, differences in achievement orientation, etc. While these are no doubt significant attribute-treatment interactions (ATI) in many situations, and while much remains to be learned about human learning, however, the beginning instructor could probably do a lot worse than to launch his or her teaching practice with the following summary list of "Do's" and "Dont's" based on the material presented in this chapter.

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[50] Mayer, op. cit., p. 2.

DO'S AND DONT'S

Do remember the limited capacity of the human mind to process information, and force yourself to settle for the few most important things learned well rather than trying to "cover the waterfront".

Don't be afraid to repeat and review frequently if major points are not being understood or cannot be applied.

Do teach for transfer by emphasizing the potential usefulness of the most important general principles, and develop problems and examples that apply principles to a wide variety of situations.

Do remember the importance of "learning set", and don't be afraid to use pretests to make sure that you know where your students are, so that you can proceed meaningfully from the known to the unknown and from the concrete to the abstract.

Do remember the importance of student motivation, and demonstrate enthusiasm, use clear directions to establish an "intent to learn", try to create situations of moderate difficulty and moderate novelty, and use students' names whenever possible.

Do help students establish learning goals for themselves that are neither so low as to be unfulfilling or so high as to be impossible of attainment, and provide frequent feedback on how they are progressing. In providing feedback, emphasize the positive, and write comments of what you can praise on papers.

Do try to begin your presentations of new material with "advanced organizers", and try to link new material to old.

Do try to begin your lectures with memorable, thought provoking questions, and make sure that your main points are emphasized at the beginning and/or the end of your presentation.

Do try to use variety in your presentations, and use visual aids whenever possible to activate both visual and verbal processing activities in your students.

Do provide students with an opportunity to actively respond and verbalize difficult points, and provide prompt and accurate feedback on major learning exercises. Again, in providing feedback, remember to emphasize the positive.

Do use priming or cueing if necessary, but don't over prompt or provide too much guidance if you want students to develop understandings and applications on their own.

Do grade on criterion for mastery of specified objectives, and don't grade on a curve that assigns a certain percentage of students a specified grade regardless of absolute performance.

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LEARNING THEORY

Exercise 1
Review Notes

1. Name the three major "schools" of learning theory in modern psychology.

   (a) The ______________________________ "school"

   (b) The ______________________________ "school"

   (c) The ______________________________ "school"

2. List three things that most psychologists today agree are important to emphasize in helping humans learn. (Write one or two words or brief phrases for answers.)

   (a) ______________________________

   (b) ______________________________

   (c) ______________________________

3. List two things that you might do to increase the motivation of your students. (Write one or two words or brief phrases for answers.)

   (a) ______________________________

   (b) ______________________________

4. List two things that you might do to help your students acquire new knowledge. (Write one or two words or brief phrases for answers.)

   (a) ______________________________

   (b) ______________________________

5. List two things that you might do to help your students retain what they have learned. (Write one or two words or brief phrases for answers.)

   (a) ______________________________

   (b) ______________________________

6. Explain in your own words why emphasizing underlying concepts rather than calculating rules may help your students transfer problem solving skills to new situations. (Write a two or three sentence answer.)

7. Restate in your own words the currently accepted explanation of why visual aids can be a powerful adjunct to your verbal presentations in helping your students remember important points. (Write a two or three sentence answer.)

8. Restate in your own words the reason why lecturers are encouraged to make their main points at the beginning and/or the end, instead of the middle of their presentation. (Write a two or three sentence answer.)

Chapter 4

INSTRUCTIONAL OBJECTIVES

Phillip Saunders

NEEDS

> "Would you tell me which way I ought to go from here?"
> "That depends a great deal on where you want to get to," said the Cat.
>
> Lewis Carroll, Alice in Wonderland

> "If you're not sure where you're going, you're liable to end up someplace else -- and not even know it."
>
> Robert F. Mager, Preparing Instructional Objectives

> "I had no idea *that* was important."
> "This instructor teaches one thing and tests something else."
> "That instructor emphasizes one thing in class and another thing on tests."
>
> Common student complaints.

Some of the most common problems in teaching and testing arise from the lack of carefully thought out instructional objectives. Many of us are so deeply immersed in our discipline that it is "obvious" to us what we are trying to do when we "teach economics." Yet it may not be obvious to our students, who lack our background knowledge of the basic cognitive structure and terminology of the discipline. Ideas and concepts that seem to be "naturally" or "logically" related to the trained mind may not appear this way to the uninitiated. It is sometimes useful, therefore, to back off and ask: "What am I trying to accomplish?" As will be noted later in this chapter, Hawkins, Davies, and Majer have stated:

> "It's ironic, but some of the things we seem to know the best we have the hardest time explaining to others. It's the old problem of being too close to the forest to see the trees. Writing objectives helps you conceptualize your subject and this is an all-important first step in conveying it."[1]

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[1] Hawkins, Davies, and Majer, Getting Started: A Guide for Beginning College Instructors, Indiana University, mimeo, 1973, p. 8.

GOALS

The goal of this chapter is to make you aware of the advantages of using carefully stated instructional objectives, and to encourage you to think carefully about what you try to accomplish in your teaching and testing activities. Hopefully, you will try to write some objectives of your own and, through practice, develop some skill in analyzing and stating meaningful objectives.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter, you will be able to:
    a) state the three most important reasons for using instructional objectives,
    b) state three general rules for writing the behavior (or "what") component of an instructional objective,
    c) define and give two examples of learning in the "cognitive domain,"
    d) define and give two examples of learning in the "affective domain,"
    e) define the terms "instructional planning chart" and "table of specifications," and indicate how each makes use of instructional objectives,
    f) define and illustrate the three component parts of a completely stated objective.
2. After reading this chapter, and given a set of instructional objectives, you will be able to:
    a) identify the conditions, behavior, and criteria component of each objective, or indicate which of these three components is missing,
    b) indicate whether each objective deals with the cognitive domain or the affective domain,
    c) suggest ways in which each objective might be improved,
    d) suggest two ways in which students might be evaluated to determine whether or not they have achieved each objective.

3. After reading this chapter, completing the exercises, and participating in a class discussion, you will be able to write at least one cognitive objective and one affective objective for an economics lecture which two qualified reviewers will indicate are completely satisfactory objectives for an introductory economics class. To be "completely satisfactory" your objective must produce appropriate responses to each of these questions.

   a) Is the topic appropriate? Does it have "worth" in terms of the broad goals of the course in which the lecture is to be given? Is it relevant, prerequisite, enriching, and/or interesting?

   b) Is the topic manageable? Does it have "fit" with respect to what it is reasonable to expect the students to be able to achieve after one lecture? Does the object imply either too much or too little content for a single lecture?

   c) Is the objective well written?

      1. Are the conditions clearly stated? Is there any other information you would want to know before being given a set of answers to grade to determine if students achieved the objective? Are the conditions realistic for the class in which the lecture is to be given?
      2. Is the behavior clearly stated? Do you know exactly what it is the student is expected to do? Is the behavior as far up the appropriate hierarchy as it is reasonable to expect for the students involved.
      3. Is the criterion clearly stated? Do you know how well students are to perform the behavior? Does the criterion appear to have been set in a thoughtful manner, or does it appear to be more arbitrary than is necessary? Is the criterion realistic for the students involved?

   d) Can a question be devised to provide a "match" between the data collected or the behavior observed and the concept or attitude you wish the student to attain?

AFFECTIVE OBJECTIVES

1. After reading this chapter and completing the exercises, it is intended that you will:

   a) value the importance of clear objectives to the learning process,

   b) articulate the value of objectives and incorporate them (as defined in this chapter) into your instructional planning and teaching.

OUTLINE OF MAIN POINTS

Three Important Reasons for Using Instructional Objectives

- Guidance for student study efforts.
- Guidance for instructor teaching efforts.
- Guidance for student and instructor evaluation efforts.

Writing Instructional Objectives

- The Cognitive Domain
- The Affective Domain

Using Objectives for Planning and Testing

- The Instructional Planning Chart
- The Table of Specifications

Completely Stated Objectives

- Stating Conditions (When)
- Describing Behavior (What)
- Setting Criteria (How Well)

Common Objections to Objectives

Do's and Don'ts

References

Exercises

INSTRUCTIONAL OBJECTIVES

Instructional objectives focus on the fundamental question: What do you want your students to be able to do after the completion of your course (teaching unit, lecture, discussion)? Carefully stated instructional objectives can be a valuable aid in providing direction for both students and instructors, and they are essential in constructing tests to evaluate student and instructor performance, Indeed, the three most important reasons for using instructional objectives are to provide guidance for (1) student study efforts, (2) instructor teaching efforts, and (3) student and instructor evaluation efforts.

THREE IMPORTANT REASONS FOR USING INSTRUCTIONAL OBJECTIVES

Guidance for Student Study Efforts. The single greatest learning aid that you can give students is a precise statement of what is expected of them. Carefully stated objectives help prevent students from wasting time and energy in studying the wrong things or engaging in inappropriate activities such as trying to "psych out" the instructor.

Guidance for Instructor Teaching Efforts Clearly stated objectives also provide an efficient way of planning your teaching activities. Once instructional objectives have been specified, it is easier to design instructional and learning activities that are the most likely to help students reach these objectives. If you find yourself spending time on activities that are not germane to your objectives, you should modify what you do; and students should be encouraged to raise questions such as: "What does this have to do with the objectives?" "Why can't we get back to what's important?"

Guidance for Student and Instructor Evaluation Efforts. Instructional objectives also help both students and instructors when it comes time for evaluation. Tests aimed at clearly specified objectives give students an opportunity to demonstrate that they have achieved what is expected of them, and the test results provide a handy way for the instructor to determine whether or not his or her teaching efforts have been effective.

WRITING INSTRUCTIONAL OBJECTIVES

Despite the usefulness and importance of instructional objectives, many instructors have difficulty in conveying to other exactly what it is that they want their students to accomplish. Many discussions of instructional objectives focus almost exclusively on course content and instructor behavior. One hears questions such as: "Do you cover international trade in your principles course?"; "How much time do you spend on national income accounting?"; "Do you use calculus and formal proofs in your intermediate theory course?"

Course content is obviously a major concern. Yet, to be useful, instructional objectives must be more than a catalogue description or an outline of content. Teaching methods, teaching materials, and the instructional process are also very important. Yet it is learning outcomes as measured by student performance that determine whether or not anything has been learned. Since we want to focus on student behavior, it is also a good idea to use verbs to describe exactly what it is you expect them to do.

Three important rules for carefully stating instructional objectives are:

1. focus on learning outcomes (not the learning process) -- it's output not input that counts;
2. focus on student (not instructor) behavior -- it's student performance that counts.
3. use verbs that have the most precise meaning possible -- "cover," "use," "know," "really know," are less precise than "recite," "construct," "identify," "compare," "contrast," "select."

As a practice exercise, which statement in each of the following pairs do you think represents the most carefully stated instructional objective? Which would be easiest to verify or measure?

1. A. Instills an appreciation of the multiplier concept.
   B. Calculates the increase in GNP resulting from an autonomous increase in government spending.
2. A. Increases proficiency in the use of charts and graphs.
   B. Interprets charts and graphs to identify equilibrium price and quantity.
3. A. Learns the monetary exchange equation.
   B. Defines each element of the monetary exchange equation.

Instructional objectives can be stated at different levels of generality, and they can be stated in terms of what educators have termed the cognitive domain and the affective domain.

The Cognitive Domain. The cognitive domain deals with intellectual outcomes such as knowledge, understanding, and thinking skills. Examples of cognitive objectives are: defines basic terms; interprets charts and graphs; recognizes logical fallacies in reasoning; predicts the outcome of an action involving economic principles. B.S. Bloom and others published Taxonomy of Educational Objectives: Cognitive Domain in 1956. This book describes six cognitive categories in detail and presents illustrative objectives and test items for each category. The categories are (1) Knowledge, (2) Comprehension, (3) Application, (4) Analysis, (5) Synthesis, and (6) Evaluation.

The Affective Domain. The affective domain deals with feelings and emotions such as interest, attitude, and appreciation. Examples of affective objectives are: listens attentively; completes assigned homework; participates in class discussions; shows interest in economics; appreciates the importance of economics in everyday life. D. R. Krathwohl and others published Taxonomy of Educational Objectives: Affective Domain in 1964. This book describes five affective categories in detail and presents illustrative objectives and test items for each category. The categories are (1) Receiving, (2) Responding, (3) Valuing, (4) Organization, and (5) Characterization by a Value or Value Complex.

It should be noted that the categories in each domain of these taxonomies are arranged in hierarchical order. Each category is assumed to include the behavior at the lower levels. Thus "application" includes behavior at the "comprehension" and "knowledge" levels, and "valuing" includes behavior at both the "responding" and "receiving" levels. An excellent brief summary of this material is contained in Chapter 4 of N.E. Gronlund Stating Behavioral Objectives for Classroom Instruction, 1970; and the four tables from this brief (58 page) pamphlet reproduced on the next four pages of this Chapter provide valuable references. You should study them carefully.

TABLE I. Major Categories in the Cognitive Domain of the Taxonomy of Educational Objectives (Bloom, 1956)

Descriptions of the Major Categories in the Cognitive Domain
1. **Knowledge.** Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.
2. **Comprehension.** Comprehension is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words to numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material, and represent the lowest level of understanding.
3. **Application.** Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.
4. **Analysis.** Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material.
5. **Synthesis.** Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviors, with major emphasis on the formulation of *new* patterns or structures.
6. **Evaluation.** Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgments are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories, plus conscious value judgments based on clearly defined criteria.

TABLE II Examples of General Instructional Objectives and Behavioral Terms for the Cognitive Domain of the Taxonomy

Illustrative General Instructional Objectives	*Illustrative Behavioral Terms for Stating Specific Learning Outcomes*
Knows common terms Knows specific facts Knows methods and procedures Knows basic concepts Knows principles	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states
Understands facts and principles Interprets verbal material Interprets charts and graphs Translates verbal material to mathematical formulas Estimates future consequences implied in data Justifies methods and procedures	Converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, predicts, rewrites, summarizes
Applies concepts and principles to new situations Applies laws and theories to practical situations Solves mathematical problems Constructs charts and graphs Demonstrates correct usage of a method or procedure	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses
Recognizes unstated assumptions Recognizes logical fallacies in reasoning Distinguishes between facts and inferences Evaluates the relevancy of data Analyzes the organizational structure of a work (art, music, writing)	Breaks down, diagrams, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides.
Writes a well organized theme Gives a well organized speech Writes a creative short story (or poem, or music) Proposes a plan for an experiment Integrates learning from different areas into a plan for solving a problem Formulates a new scheme for classifying objects (or events, or ideas)	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes
Judges the logical consistency of written material Judges the adequacy with which conclusions are supported by data Judges the value of a work (art, music, writing) by use of internal criteria Judges the value of a work (art, music, writing) by use of external standards of excellence	Appriases, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, supports

TABLE III. Major Categories in the Affective Domain of the Taxonomy of Educational Objectives (Krathwohl, 1964)

	Descriptions of the Major Categories in the Affective Domain
1.	**Receiving.** Receiving refers to the student's willingness to attend to particular phenomena or stimuli (classroom activities, textbook, music, etc.). From a teaching standpoint, it is concerned with getting, holding, and directing the student's attention. Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the part of the learner. Receiving represents the lowest level of learning outcomes in the affective domain.
2.	**Responding.** Responding refers to active participation on the part of the student. At this level he not only attends to a particular phenomenon but also reacts to it in some way. Learning outcomes in this area may emphasize acquiescence in responding (reads assigned material), willingness to respond (voluntarily reads beyond assignment), or satisfaction in responding (reads for pleasure or enjoyment). The higher levels of this category include those instructional objectives that are commonly classified under "interests"; that is, those that stress the seeking out and enjoyment of particular activities.
3.	**Valuing.** Valuing is concerned with the worth or value a student attaches to a particular object, phenomenon, or behavior. This ranges in degree from the more simple acceptance of a value (desires to improve group skills) to the more complex level of commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of a set of specified values, but clues to these values are expressed in the student's overt behavior. Learning outcomes in this area are concerned with behavior that is consistent and stable enough to make the value clearly identifiable. Instructional objectives that are commonly classified under "attitudes" and "appreciation" would fall into this category.
4.	**Organization.** Organization is concerned with bringing together different values, resolving conflicts between them, and beginning the building of an internally consistent value system. Thus the emphasis is on comparing, relating, and synthesizing values. Learning outcomes may be concerned with the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) or with the organization of a value system (develops a vocational plan that satisfies his need for both economic security and social service). Instructional objectives relating to the development of a philosophy of life would fall into this category.
5.	**Characterization by a Value or Value Complex.** At this level of the affective domain, the individual has a value system that has controlled his behavior for a sufficiently long time for him to have developed a characteristic "life style." Thus the behavior is pervasive, consistent, and predictable. Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behavior is typical or characteristic of the student. Instructional objectives that are concerned with the student's general patterns of adjustment (personal, social, emotional) would be appropriate here.

TABLE IV. Examples of General Instructional Objectives and Behavioral Terms for the Affective Domain of the Taxonomy

Illustrative General Instructional Objectives	*Illustrative Behavioral Terms for Stating Specific Learning Outcomes*
Listens attentively Shows awareness of the importance of learning Shows sensitivity to human needs and social problems Accepts differences of race and culture Attends closely to the classroom activities	Asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits erect, replies, uses
Completes assigned homework Obeys school rules Participates in class discussion Completes laboratory work Volunteers for special tasks Shows interest in subject Enjoys helping others	Answers, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes
Demonstrates belief in the democratic process Appreciates good literature (art or music) Appreciates the role of science (or other subjects) in everyday life Shows concern for the welfare of others Demonstrates problem-solving attitude Demonstrates commitment to social improvement	Completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works
Recognizes the need for balance between freedom and responsibility in a democracy Recognizes the role of systematic planning in solving problems Accepts responsibility for his own behavior Understands and accepts his own strengths and limitations Formulates a life plan in harmony with his abilities, interests, and beliefs	Adheres, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes
Displays safety consciousness Demonstrates self-reliance in working independently Practices cooperation in group activities Uses objective approach in problem solving Demonstrates industry, punctuality and self-discipline Maintains good health habits	Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies

Beginning instructors usually have more difficulty in working with Krathwohl's affective taxonomy than with Bloom's cognitive taxonomy. And, within the cognitive taxonomy, beginning instructors often have difficulty in determining whether a particular learning outcome is "knowledge" or "comprehension" or whether another learning outcome is "application" or "synthesis." Rather than getting bogged down in labeling and classification problems, however, it is far better for beginning instructors to simply use these aids to keep in mind two major considerations:

1. the importance of going beyond simple recall and restatement of facts and definitions to higher levels of critical thinking;
2. the importance of emphasizing attitudes and appreciations as well as cognitive skills.

The tendency to overload lists of instructional objectives with low level cognitive behaviors simply because they are easier to define should be avoided. More complex objectives, although difficult to define, are usually more important from the educational point of view. Rome wasn't built in a day, and one doesn't have to come up with a full blown set of perfectly stated cognitive and affective objectives on the first try. Reference books and other relevant materials can be consulted for suggestions concerning specific types of student behavior that might be appropriate for particular objectives. And, once begun, an instructor's list of objectives can be modified, improved, and refined. Getting started is the most important and often the most difficult task.

In this connection Gronlund's pamphlet mentioned above is probably the best reference guide to start with, and he offers the following example.

> Objectives pertaining to thinking skills, attitudes, and appreciation should not be slighted because of the difficulty of clearly defining them. It would seem better to list the specific types of behavior that can be identified before instruction begins and then to revise and improve that list as relevant examples of student reaction become apparent. One teacher, for example, compiled the following tentative list of types of behavior for the objective appreciates good literature.
>
> Appreciates good literature.
> 1. Describes the differences between good and poor literature.
> 2. Distinguishes between selections of good and poor literature.

> 3. Gives critical reasons for classifying a selection as good or poor.
> 4. Selects and reads good literature during free-reading period.
> 5. Explains why he likes the particular selections of good literature that he reads.
>
> Although this list is far from complete, this teacher had a fairly good notion of what she meant by the rather vague concept appreciation. The specific types of behavior are definite enough to provide guidelines for instructional planning, and hopefully she will expand and refine the list as she gives this objective more direct emphasis in her teaching and testing.[2]

This technique of stating a fairly general objective ("appreciates good literature") followed by several more specific examples is a good one, and this example illustrates the usefulness of beginning each objective with a verb that specifies observable behavior.

To keep the number of objectives to reasonable limits, rather general verbs like "knows" or "appreciates" can be used provided they are followed by a representative sample of more specific behaviors such as "defines," "describes," "distinguishes" which make clear the type of specific learning outcomes that are necessary to insure that students have achieved the general objective.

The example shown in Table V indicates how the four general objectives "knows basic terms," "understands economic concepts and principles," "applies economic principles to new situations," and "interprets economic data," can be defined in specific behavioral terms. The list is not meant to be exhaustive, and it is for illustrative purposes only. Note that the statements of specific behaviors listed under each general objective describe how the student is expected to react toward the subject matter in economics, but they do not describe the specific subject matter toward which he or she is to react. (For example, the specific behaviors listed under "knows basic terms" describe what is meant by "knowing," not what terms the student should know.) Such statements make it possible to relate the same instructional objectives to various areas of content.

When stated like the examples in Table V, instructional objectives can serve as a highly useful guide to students and to instructors in

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[2] Norman E. Gronlund, Stating Behavioral Objectives for Classroom Instruction, Macmillan, 1970, p. 16.

TABLE V -- OBJECTIVES FOR A COURSE (OR UNIT) IN ECONOMICS[3]

(These objectives can be applied to various content areas depending on the length of the course/unit.)

1. Knows basic terms.
    1.1 Relates terms that have the same meaning.
    1.2 Selects the term that best fits a particular definition.
    1.3 Identifies terms used in reference to particular economic problems.
    1.4 Uses terms correctly in describing economic problems.
2. Understands economic concepts and principles.
    2.1 Identifies examples of economic concepts and principles.
    2.2 Describes economic concepts and principles in own words.
    2.3 Points out the interrelationship of economic principles.
    2.4 Explains changes in economic conditions in terms of the economic concepts and principles involved.
3. Applies economic principles to new situations.
    3.1 Identifies the economic principles needed to solve a practical problem.
    3.2 Predicts the probable outcome of an action involving economic principles.
    3.3 Describes how to solve a practical economic problem in terms of the economic principles involved.
    3.4 Distinguishes between probable and improbable economic forecasts.
4. Interprets economic data.
    4.1 Differentiates between relevant and irrelevant information.
    4.2 Differentiates between facts and inferences.
    4.3 Identifies cause-effect relations in data.
    4.4 Describes the trends in data.
    4.5 Distinguishes between warranted and unwarranted conclusions drawn from data.
    4.6 Makes proper qualifications when describing data.

3/ Norman E. Gronlund, Stating Behavioral Objectives for Classroom Instruction, Macmillan, 1970, p. 40.

focusing their learning and teaching efforts and in preparing for evaluation.

USING OBJECTIVES FOR PLANNING AND TESTING

The Instructional Planning Chart. A device that often proves helpful in using instructional objectives for effective instructional planning is an Instructional Planning Chart such as the one illustrated in Table VI, where instructional objectives are listed in one column, teaching methods are listed in a second column, and evaluation techniques are listed in a third column. Constructing such a chart may seem to be a forbidding task at first; but, such a chart can be constructed with various degrees of detail, and everything doesn't have to be written down in complete sentences. Indeed, even if you don't write anything at all down on paper, it is a good idea to run over the basic outline of an instructional planning chart in your mind from time to time. It is a good way to insure that you don't fall into the common traps of rushing over things too fast because of a failure to consider all facets of their complexity and/or running out of time at the end of the semester. An instructional planning chart also helps make sure that you are using your teaching and evaluation efforts appropriately. If "applies economic principles to new situations" is one of your objectives, for example, but you find that little class time is being devoted to developing this skill, then you should not expect students to be able to do well on this type of exam question unless you consciously begin devoting more class time to helping students apply economic princples to new situations. Transfer of knowledge to new situations is a difficult skill to master, and one must either be prepared to devote time to this important task, to change his or her objectives, or to face a lot of student resentment over an instructor who, "teaches one thing and tests something else."

The Table of Specifications. Another device that is often useful in employing instructional objectives for testing purposes is a Table of Specifications such as the one illustrated in Table VII. A Table of Specifications is a two-fold table relating economics content to instructional objectives. Both the content outline and the list of

TABLE VI -- INSTRUCTIONAL PLANNING CHART

Instructional Objectives	Teaching Methods	Evaluation Techniques
1. Knows economic terms A. Gives textbook definition B. Identifies examples in selected reading. C. Uses terms correctly in oral and written work.	Encourage students to make an "economics" dictionary" and to review the definitions periodically. Point out, and ask students to point out, examples during discussion of reading assignments. Give oral and written assignments requiring use of the terms.	Short answer essay test. Multiple choice test. Observation during class discussion and evaluation of written work.
2. Applies economic principles (supply and demand) to new situations. A. Identifies the economic principles needed to explain a current event (increasing coffee prices). B. Predicts the probable outcome of alternative actions involving economic principles. C. Distinguishes between probable and improbable outcomes of suggested actions.	Read a brief newspaper report about increasing coffee prices to class. Lead off discussion with questions concerning why prices rise (increased demand, reduced supply). Have students identify consequences for equilibrium quantity if price increase is caused by reduced supply. Have students identify consequences for equilibrium quantity if price increase is caused by increased demand. Have students indicate which of these situations best fits the "facts" in this case. Have class predict results of a law fixing the price of coffee at old (lower) level. Have the class predict results on the amount of coffee consumed if a consumer boycott succeeds in lowering the price to old level. Have the class analyze the argument that "the higher price will lower demand and the lower demand will cause the price to fall, therefore, the equilibrium price of coffee may end up lower than it was before." Have the class predict the effect of the increase in coffee price on the equilibrium price and the equilibrium quantity of tea.	Observation during class discussion. Homework problem emphasizing a series of supply demand diagrams in which students have to draw in new curves and indicate new equilibrium prices and quantities for a series of specified events. Objective test on specific points dealing with shifts in curves and moves along curves. Essay questions calling for interpretations and supporting evidence. Evaluation of students' written reports using the criteria of correct application of supply and demand model.

TABLE VII -- TABLE OF SPECIFICATIONS FOR A TEST ON SUPPLY AND DEMAND

(The number of questions or the number of points on a test can be shown in the cells.)

CONTENT AREAS	1 KNOWS BASIC TERMS	2 UNDERSTANDS CONCEPTS AND PRINCIPLES	3 APPLIES PRINCIPLES	4 INTERPRETS DATA
1. Demand:				
A. Price Elasticity (total revenue test)				
B. Change in "Demand" vs. Change in "Quantity Demanded"				
2. Supply:				
A. Price Elasticity (length of adjustment period)				
B. Change in "Supply" vs. Change in "Quantity Supplied"				
3. Equilibrium Price and Equilibrium Quantity in one Market				
4. Changes in Equilibrium in Inter-related Markets.				
A. Complementary goods				
B. Substitute goods				
C. Tandem goods				

instructional objectives can be specified at various levels of detail. Since the horizontal space is more constrained than the vertical space, it is usually better to arrange the general objectives across the top of the table, and to arrange the outline of content in the left hand column of the table. Each cell in a table of specifications represents both a content area and an instructional objective. By classifying each question on a test in a particular cell it is possible to make sure that your tests measure the content and the objectives you have emphasized in class. If most of the questions on a unit test cluster in a cell that received little attention in class, some modification of the test is in order before using it for evaluation purposes. Or, if the test is already prepared or available, and if you then construct a table of specifications well in advance, you can make sure that your teaching efforts are directed to the areas measured on the test.

COMPLETELY STATED OBJECTIVES

So far we have discussed the most important part of an instructional objective: the learning outcome or the behavior that the student should be able to demonstrate. Educators correctly point out, however, that a statement of what the student must do is only one component of a completely stated objective. To be complete, an instructional objective should also contain a statement of the conditions in which the student should be able to do it, and a statement of the criteria that will be used to judge how well it is done.[4] The three basic components of a completely stated objective -- conditions, behavior, and criteria -- are sometimes summarized in the three basic questions of when? what? and how well?

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[4] An excellent brief treatment of all three aspects of a completely stated objective is Robert F. Mager, Preparing Instructional Objectives, Fearon Publishers, 1962. Written in a format that permits you to practice and test yourself as you go along, this entire book can be completed in about one hour.

Another brief programmed approach to formulating instructional objectives is Donald L. Troyer, "Performance Objectives: Formulation and Implementation," in James Weigand (ed.) Implementing Teacher Competencies, Prentice-Hall, 1977, pp. 98-116. The second part of Troyer's chapter (pp. 116-143) goes beyond writing objectives to evaluating them in terms of "worth," "fit," and "match." More will be said on these important aspects of evaluating objectives later in this chapter.

> After attending the appropriate lecture, the student should be able to define the term "induced investment" with 100% accuracy.
>
> Given 13 years of time series data on GNP, the stock of money, the Consumer's Price Index, and the unemployment rate, and with the aid of calculators being permitted, the student should be able to correctly compute the income velocity of circulation to two decimal places for the first, fifth, ninth, and thirteenth years in a five minute period.
>
> After completing the appropriate homework assignment, and given a previously unseen table with seven different prices and corresponding quantities demanded, the student should be able to correctly label five of the six intervals in the table as "elastic," "inelastic," or "unit elastic" within a ten minute period.
>
> Given a hypothetical newspaper clipping with three erroneous interpretations of an economic event, the student should be able to correctly identify two of the three errors and explain fully the reason why they are wrong.

Stating complete objectives in this form, with conditions, behavior, and criteria all written out in detail, becomes a prodigious task that may quickly run into diminishing returns. Yet it is important to keep conditions and criteria in mind when deciding what it is we want our students to be able to do. Comparing the performance of different students or different groups on the same test, for example, is not appropriate if the conditions are not similar. Considerations such as whether or not students are allowed to consult notes and books and the amount of time allowed to work are also important in deciding what criteria to use in evaluating responses. Moreover, this approach provides a basis for assuring the instructor that students can do these things within the available time when examinations are given.

Stating Conditions (When). Since students are most frequently called upon to demonstrate that they have mastered the behavior specified in your objectives in situations involving exams or other evaluative assignments, a good shorthand way to explain to students the conditions under which they will be expected to perform is to show them some sample directions and test items from old exams and assignments. On evaluative exercises it is important that students understand how much time they will be given and what reference and calculating aids they will be permitted to use. Indeed, one way to present the objectives for a particular content unit or even a whole course might be issue a general prefatory statement such as the following:

> "After attending all of the classes, completing all of the reading and homework assignments, and studying for the exam, and without the aid of any notes or calculating devices, the student should be able to correctly answer questions of the following type in a given time period." (List of sample questions follows.)

The sample questions distributed should reflect the balance you plan to use among essay, multiple choice, matching, and other types of questions. In addition to sample questions, you might even distribute a general table of specifications similar to the one shown in Table VII to indicate the relative emphasis you plan to place on various content areas and various general learning outcomes.

Describing Behavior (What). We have already indicated that the keys to writing the behavior component of an instructional objective are to use verbs that indicate student performance. Many people have difficulty in thinking of verbs that describe precise behavior at the higher levels of the cognitive and affective hierarchies. It is definitely easier to formulate precise behavior statements at the lower than at the higher levels, but the difficulty of the task should not deter you from attempting to formulate objectives at the higher levels if you, like most people, feel that these levels are the most important ones in the learning process.

Gronlund's reference lists reproduced in Table II and Table IV above should be of considerable aid in formulating higher level performance behaviors, and another technique that is often helpful is "working backwards."

Working backwards in constructing cognitive objectives involves starting with examination questions that you think are "good" questions that measure what you want your students to learn and then "infer" the objectives by stating what a student must do to correctly answer the questions you have selected. Take the following multiple choice question for example.

1. Assume that between 1962 and 1972 GNP increases from $500 billion to $1000 billion, and that the appropriate index of prices increases from 100 to 200. Which of the following correctly expresses GNP for 1972 in terms of 1962 prices?

   A. $ 250 billion.
   B. $ 500 billion.
   C. $1000 billion.
   D. $2000 billion.

If you think that the ability to use a price index to "deflate" nominal GNP figures is an important thing for your students to be able to do, and you want to write an objective that indicates this without showing your students the exact question you plan to use to measure this ability, then the above question can be used to "work backwards" and infer the following conditions and behavior:

> Given data on nominal GNP and an appropriate price index students will correctly calculate constant dollar GNP in terms of the base year of the price index.

Once you have used a particular question to construct an instructional objective, the objective can then serve as a guide to constructing other questions that test the same behavior. Thus, the preceeding objective enables you to devise questions similar to the following:

2. If the current or "money" GNP in a particular country was $500 billion in 1970 and $1,200 billion in 1975, and if the appropriate price index was 100 in 1970 and 200 in 1975, the value of the 1975 GNP in terms of 1970 prices is:

   A. $ 600.
   B. $ 700.
   C. $1000.
   D. $1100.

3. If the appropriate price index is 100 for 1960 and 120 for 1970, and GNP is $360 billion for 1960 and $480 billion for 1970, the value of 1970 GNP in terms of 1960 prices is:

   A. $384.
   B. $400.
   C. $424.
   D. $460.

If you want to add the ability to convert index numbers from one base year to another to your objectives, then you can state:

> Given a price index with one base year indicated, the student will correctly convert the index numbers to those of another base year when the new base year is specified.

And you can devise a series of questions to measure both of your objectives as follows:

THE NEXT THREE QUESTIONS (#4-6) ARE BASED ON THE FOLLOWING INFORMATION FOR A HYPOTHETICAL ECONOMY:

Year	Current or "Money" GNP	GNP Price Index (1960 = 100)	GNP Price Index (1970 = 100)
1960	500	100	
1970	1,200	200	100

4. The value of the 1970 GNP in terms of 1960 prices is:

   A. 600.
   B. 700.
   C. 1,000.
   D. 1,100.

5. If 1970 is made the base year for the GNP price index, the value of the index number for 1960 (rounded to the nearest whole number) would be:

   A. Zero.
   B. 50.
   C. 100.
   D. 200.

6. The value of the 1960 GNP in terms of 1970 prices is:

   A. 500.
   B. 600.
   C. 700.
   D. 1,000.

Finally, if you think that a true understanding of "deflating" involves being able to impute the price index by comparing nominal and constant dollar GNP figures for the same year, then you could write the following conditions and behavior:

> Given "deflated" (constant dollar) and "undeflated" (nominal) GNP figures for a particular year, the student will correctly calculate the price index for the year indicated.

And use the following question:

7. If "deflated" GNP in 1970 was $400 billion and "undeflated" GNP for the same year was $500 billion, the GNP deflator for 1970 would be:

   A. 125.
   B. 100.
   C. 80.
   D. impossible to determine without knowing the base year.

The importance of carefully stating the behavior component of an instructional objective should be obvious from the preceeding examples. If you simply want your students to be able to "deflate" nominal GNP figures to constant dollar GNP figures, questions #5 and #7 above do NOT measure this behavior. They measure related but different skills.

This brings us to the most important considerations involved in selecting and measuring the behaviors you want your students to learn -- the underlying rationale you use in selecting your objectives, and the questions you choose to measure whether or not the behaviors have been achieved. Troyer, cited in footnote 4 above, uses the code works "match," "fit," and "worth" in this important area.

"Match" deals with determining whether or not the behavior being observed or tested really measures the skill, concept, or attitude that you wish your students to attain. (Questions #5 and #7 above, for example, do not measure the objective "calculates constant dollar GNP in terms of the base year of the price index." Question #5 measures "converts the index numbers to those of another base year;" and question #7 measures "calculate the price index for the year indicated.")

"Fit" deals with the appropriateness of a behavior in terms of the background of the students in your class. If your students cannot multiply or divide, for example, none of the objectives above are appropriate since it is impossible to achieve them without being able to perform these simple arithmetic operations. If you think that these objectives are important, you would have to improve the "fit" by giving your students the prerequisite skills needed to achieve your objectives. Or, if you decide it is not worth all of this effort, you would have to discard these objectives. A carefully, devised pre-test is probably the best way to determine if your students have the prerequisite skills necessary to "fit" the objectives you want them to attain. The results of the pre-test can be used either to modify the objectives or to modify the students' skills.

"Worth" is perhaps the most important consideration of all in selecting the behaviors you want your students to obtain. This deals with general academic relevance and your broad course goals. If your main course goal is to develop a general understanding of how economic policy can influence the performance of the American economy, for example, you might feel that detailed arithmetic calculations such as those indicated above are "irrelevant" in terms of your goals. Others may disagree, but your most important task in selecting performance objectives is to make sure that they are relevant to the broad goals you can realistically expect students to achieve.[5]

The need for realistic expectations in setting objectives is particularly important in the affective domain By the time a person enters college he or she has had approximately 18 years of attitude forming experiences, and there are limits to what one can expect to accomplish in a single course that meets for some three hours a week. Attitudes and beliefs are generally slow to change, but it is possible to increase (and decrease) interest in most students.

Since interest and motivation are also important in stimulating student effort in the cognitive area, you should try to formulate objectives at least as far up the affective hierarchy as "valuing." To make sure that students are "receiving" and "responding," for example, you should make a special effort to notice occasionally how frequently questions are raised in class, how many different students ask questions, and the nature of the questions raised. Student evaluation questionnaires that ask questions such as the following can also be used to ascertain the extent to which your affective objectives are being met.

---

[5] Troyer, op cit, pp. 123-126 discusses "worth" in terms of application or generalization, prerequisites, enrichment, student interest, and instructor interest. A good check list to use in selecting the behaviors you want your students to master might be the following. Is the concept or skill:

a) generalizable or applicable after the students leave the classroom,
b) a necessary prerequisite for subsequent learning,
c) an enrichment experience that takes the student beyond the hum-drum of regular academic routine,
d) likely to stimulate your interest and/or the interest of the students.

Compared to your interest in economics as a subject at the beginning of the course, how would you rate your present interest in economics as a subject?

A. Much more interested.
B. More interested.
C. About the same.
D. Less interested.
E. Much less interested.

The subject matter of this course is important and relevant in today's world.

A. Strongly agree.
B. Agree.
C. Neither Agree nor disagree.
D. Disagree.
E. Strongly disagree.

Setting Criteria (How Well) Determining how well a student should be expected to master a particular objective depends a great deal on the nature of the objective itself. In the cognitive domain it is useful to distinguish between what Gronlund has termed the "minimum essentials level" and the "developmental level."

"Minimum essentials" objectives are typically low level cognitive outcomes that can be mastered by almost all students and which serve as prerequisites to further learning in the area. Objectives at the minimum essentials level can be stated in terms of specific tasks to be performed (define the term opportunity cost) and can be taught and tested on a one-to-one basis. Teaching is directed toward the specific behavior stated in the objective (for example, a definition of opportunity cost is presented) and test items require students to demonstrate responses identical to those learned in class ("define opportunity cost" or "opportunity cost is defined as. . ." followed by a set of alternative definitions). At this level, complete or nearly complete mastery can be expected: "with 100% accuracy," or "correctly defines nine of ten terms." Although the criteria can be stated with precision, however, the standards (10 out of 10, 9 out of 10, or 8 out of 10) are somewhat arbitrary depending upon the students and the tasks involved.

"Developmental" objectives are typically higher level cognitive outcomes that represent goals toward which students may show different degrees of progress, but which many may never fully achieve. Objectives at the developmental level are stated in terms of general behaviors that can be defined by a representative sample of specific behaviors (see "interprets economic data" in Table V). Objectives at the developmental level are taught and tested in terms of the general class of behaviors represented by the objective rather than in terms of each of the specific behaviors that might be listed in a particular sample. Teaching is directed toward the general objective or the total class of behavior, and test items require students to demonstrate previously learned responses in situations containing some novelty. At this level the criteria for mastery are difficult to state with a single degree of precision that applies to all students; indeed, different degrees of relative performance should be recognized.

On these points Gronlund states:

> In some cases, it may be desirable to develop two separate tests -- one to test for mastery of minimum essentials and the other to determine the degree of student progress toward the more complex instructional objectives. We would expect most students to do well on the mastery test and would require those who did not do well to repeat the test (or an equivalent form of the test) after a reasonable time for review. The second type of test would have a high level of difficulty and would provide a wide range of scores. This method of testing permits us to check on the extent to which the students are meeting the minimum standards of the course and the degree to which they are progressing beyond the minimum requirements. Of course, both types of tests may be included in the same instrument as long as they are arranged as separate parts. From a motivational standpoint, it is desirable to place the part designed to test for mastery of minimum essentials first and to explain to the students the purpose of each part.[6]

Students and instructors alike inevitably think of cognitive criteria in terms of grades, and many object to purely normative or "curve" grading distributions that dictate X% A's and Y% F's regardless of the absolute levels of performance. There has been increasing acceptance of "criterion referenced" grading in which all students who achieve a designated degree of mastery receive an appropriate grade regardless of what percentage of students achieve this level of performance. Indeed, one would hope that all of his or her students achieve the maximum degree of mastery, but this does not always seem possible in most college classrooms. One way to construct a criterion referenced grading scheme that takes account of performance of both minimum essential objectives, which all students should be able to master, and developmental objectives, which may result in different degrees of mastery, is to construct a grading system such as the following.

---

[6] Gronlund, op cit, p. 44.

Performance	Grade
Less than ___% (e.g., 80%) on minimum essential questions, and less than ___% (e.g., 50%) on developmental questions.	F
___% (e.g., 80%) or more on minimum essential questions, and/or between ___% and ___% (e.g., 50% and 59%) on developmental questions.	D
___% (e.g., 80%) or more on minimum essential questions, a and between ___% and ___% (e.g., 60% and 74%) on developmental questions.	C
___% (e.g., 90%) or more on minimum essential questions, and between ___% and ___% (e.g., 75% and 84%) on developmental questions.	B
___% (e.g., 90%) or more on minimum essential questions, and ___% (e.g., 85%) or more on developmental questions.	A

Affective criteria do not involve grading directly, but again a certain degree of arbitrariness is involved in setting particular acceptance or target levels, e.g.:

> At least four students will volunteer an explanation of how they arrived at the solution to homework problem #X.
>
> Given a questionnaire similar to the one shown on page 25 above, at least 50% of the respondents will indicate a greater interest in economics as a subject at the end of the course than at the beginning of the course, and at least 75% of the students will "agree" that economics is important and relevant in today's world.

Although the criterion levels for affective objectives have to be set somewhat arbitrarily, experience can help you establish historical bench marks on which you can attempt to improve. If "only" 40% of your students agreed with statement #10 last semester, you can set your target at 50% this semester.

COMMON OBJECTIONS TO OBJECTIVES

So far this chapter has emphasized the advantages of using carefully stated instructional objectives. Yet it is only fair to note that many beginning instructors are sometimes intimidated by what seems to be a very demanding and potentially overwhelming task. We will conclude, therefore, with the following excerpt from Hawkins, Davies, and Majer, which lists some common objections to objectives and offers a response to them. After reading their comments, note the Do's and Don'ts and try your hand at the exercises at the end of this chapter before reaching your own conclusions on the extent to which you want to make use of instructional objectives in your own situation.

> Below are some typical "objective objections" and a few comments. Maybe you will recognize some of your own thoughts.
>
> -----"I already know my subject pretty well. Why waste time writing objectives?"
>
> It's ironic, but some of the things we seem to know the best, we have the hardest time explaining to others. It's the old problem of being too close to the forest to see the trees. Writing objectives helps you conceptualize your subject and this is an all-important first step in conveying it.
>
> -----"So much of what I want to teach is intangible. How can I possibly write objectives?"
>
> You may not want to write objectives for everything. On many occasions they may prove very helpful in your teaching and in other situations, they may destroy the quality of the educational experience. The whole point of writing objectives is to make you sensitive to what you're trying to do, and you need this sensitivity no matter what you're trying to convey -- whether it's knowledge, a specific physical skill or point of view.
>
> -----"Won't I straitjacket myself and my class if I limit myself to a list of objectives?"
>
> Think of objectives as a springboard rather than as a straitjacket . Objectives don't set a maximum amount for what you can do, but they do set a minimum. And this is important. Have you ever completed a course with the nagging feeling that the prof really didn't teach anything? Even with clearcut goals, you run the risk of not accomplishing all that you'd like. And without them, you run the risk of teaching nothing.
>
> Objectives won't stifle your own or your students' creativity. Once you know where you're going, you can be as creative as you like in getting there.7/

7/ Hawkins, Davies, and Majer, op cit, p. 8.

DO'S AND DONT'S

DO'S	DONT'S
Clearly explain to your students WHAT is to be learned and how they are to demonstrate what has been learned	Force students to guess what is important and what they are supposed to learn.
Explain WHEN and under what conditions the students will be expected to demonstrate their knowledge.	Expect students to guess when they are to demonstrate their achievement and don't make them guess what aids, materials, or time they may use to demonstrate their competence.
Establish HOW WELL the students must perform to demonstrate satisfactory achievement.	Let students wonder about the level of proficiency necessary to demonstrate they have learned the material satisfactorily.
Think seriously about using an instructional planning chart and a table of specifications to guide and analyze your teaching and testing efforts.	Begin your teaching efforts without giving serious thought to what you want your students to be able to accomplish after you have finished.
Think seriously about what you would like your students to accomplish in the affective domain as well as the cognitive domain.	Make up exams without checking to make sure that the questions reflect what you have indicated is important.

REFERENCES

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Hawkins, Susan, Ivor Davies, and Kenneth Majer. Getting Started: A Guide for Beginning College Instructors. Indiana University, Mimeo. 1973.

Mager, Robert F. Preparing Instructional Objectives. Fearon Publishers. 1962.

Weigand, James. Implementing Teacher Competencies. Prentice-Hall, 1977.

INSTRUCTIONAL OBJECTIVES
Exercise 1

Review Notes

1. In your own words, briefly state three reasons for using instructional objectives in teaching introductory economics.

   (1) ______________________________

   (2) ______________________________

   (3) ______________________________

2. What are the three component parts of a completely stated instructional objective? What key words or phrases are associated with each?

   (1) ______________________________

   (2) ______________________________

   (3) ______________________________

3. Give three general rules for stating the behavior (or "what") component of an instructional objective.

   (1) ______________________________

   ____

   (2) ______________________________

   ____

   (3) ______________________________

   ____

4. A. What is an "instructional planning chart"?

____

____

____

____

B. To which of the three reasons you stated in question #1 above is the instructional planning chart most closely related? ____________________

____

5. A. What is a "table of specifications"? ____________________

____

____

____

B. To which of the three reasons you stated in question #1 above is the table of specifications most closely related? ____________________

____

6. A. The "affective domain" deals with ____________________

____

____

B. Two examples of affective behaviors are:

(1) ____________________________________

(2) ____________________________________

7. A. The "cognitive domain" deals with ______________________________

____

____

B. Two examples of cognitive behaviors are:

(1) ____

(2) ____

8. Note the following instructional objectives and answer the questions below:

[1] After the unit on money, the student will be able to select from a list of plausible alternatives the two main components of the United States money supply with 100% accuracy.

[2] After the unit on money, the student will realize that the United States money supply is more than simply the currency in circulation.

[3] During the unit on money, the instructor will explain thoroughly each component of the United States money supply.

[4] During the unit on money, and without any prompting, at least one student will indicate his or her interest in the subject by bringing to class an article clipped from a newspaper or a verbal report of a radio or TV report dealing with the topic.

A. Which of the above objectives (is/are) the most correctly stated? ___. Why? ____

____

____

____.

B. Which of the above objectives is aimed at the highest cognitive level in Bloom's Taxonomy? ________. Why? __________________

____

____

____

C. Which of the above objectives is an affective as opposed to a cognitive objective? ______________________________

In terms of Krathwohl's Taxonomy, with which affective level does this objective deal? ______________________________

9. Circle the letter in front of the statement below which most accurately and honestly reflects your present attitude towards instructional objectives.

A. I plan to use instructional objectives in my teaching because they are useful tools in planning and evaluating instruction.

B. Instructional objectives are of value but are an awful lot of work to prepare.

C. I would use instructional objectives if my department chairman insisted on them.

D. If you are well informed in your field, instructional objectives are unnecessary.

E. Instructional objectives are a waste of time, they are just so much "educational busy work."

F. No opinion.

INSTRUCTIONAL OBJECTIVES

Exercise 2

Below are eight instructional objectives. For each objective:

(1) Put a "C" in the blank in front of each objective if you think that the objective deals with the cognitive domain, and put an "A" in the blank if you think that the objective deals with the affective domain.

(2) Underline the conditions part of each objective where conditions are present, put square brackets [] around the behavior part of each objective where student behavior is indicated, and circle the criteria part of each objective where the criteria are stated. If any of these three parts are missing, note the missing parts in the blank spaces below each objective.

(3) On a separate piece of paper, edit and reword any of these objectives that you think you can improve.

___ 1. "75% of the students will be able to define 'marginal-revenue-product' and distinguish it from 'marginal-physicial-product'."

Anything missing? ____

____

Note reworded improvements on a separate page.

___ 2. "At the conclusion of one semester of introductory economics, student interest in economics will be such that 15% of the non-majors will enroll in the second semester course."

Anything missing? ____

____

Note reworded improvements on a separate page.

___ 3. "To provide an overview of the way our individualistic, largely private enterprise but mixed economic system works."

Anything missing? ____

____

Note reworded improvements on a separate page.

___ 4. "To focus attention on the big problems faced by our economic system, and to arouse an interest in economic problems that will last after you leave college."

Anything missing? ______________________________

____

Note reworded improvements on separate page.

___ 5. "After studying the case on international trade, the students will be able to answer the 50 programmed questions at the end of the unit on balance of payments with a maximum of five errors."

Anything missing? ______________________________

____

Note reworded improvements on separate page.

___ 6. "When presented with a demand schedule for wheat showing the quantities demanded at various prices and three different demand curves, 75% of the students will be able to select the curve that correctly illustrates the data provided."

Anything missing? ______________________________

____

Note reworded improvements on separate page.

___ 7. "After reading the textbook assignment, and attending a lecture, and when given a previously unseen newspaper clipping describing changes in the price of bus rides, the number of riders, and the total amount of money spent on bus rides, 75% of the students will be able to use the total revenue test to indicate whether the demand for bus service is elastic or inelastic and explain their reasoning with 100% accuracy."

Anything missing? ______________________________

____

Note reworded improvements on separate page.

___ 8. "After this class meeting, and after studying for the next exam, 70% of the students should be able to select the correct alternative on a multiple choice question that gives price and quantity information and ask whether demand is elastic, inelastic, unit elastic, or something else."

Anything missing? ______________________________

____

Note reworded improvements on separate page.

INSTRUCTIONAL OBJECTIVES

Exercise 3

Prepare a cognitive objective and an affective objective for a lecture that you plan to give to an introductory economics class.

In preparing each of your objectives, pay particular attention to the following questions which will be used by two qualified reviewers to determine whether or not you have successfully completed this exercise.

A. Is the topic appropriate? Does it have "worth" in terms of the broad goals of the course in which the lecture is to be given? Is it relevant, prerequisite, enriching, and/or interesting?

B. Is the topic manageable? Does it have "fit" with respect to what it is reasonable to expect the students to be able to achieve after one lecture? Does the object imply either too much or too little content for a single lecture?

C. Is the objective well written?

1. Are the conditions clearly stated? Is there any other information you would want to know before being given a set of answers to grade to determine if students achieved the objective? Are the conditions realistic for the class in which the lecture is to be given?
2. Is the behavior clearly stated? Do you know exactly what it is the student is expected to do? Is the behavior as far up the appropriate hierarchy as it is reasonable to expect for the students involved.
3. Is the criterion clearly stated? Do you know how well students are to perform the behavior? Does the criterion appear to have been set in a thoughtful manner, or does it appear to be more arbitrary than is necessary? Is the criterion realistic for the students involved?

D. Can a question be devised to provide a "match" between the data collected or the behavior observed and the concept or attitude you wish the student to attain?

Chapter 5

LECTURES AS AN INSTRUCTIONAL METHOD

Phillip Saunders

NEEDS

Regardless of their preferences for particular teaching methods, all instructors find themselves in situations where good lectures are the most effective means of achieving some of their instructional objectives. Good lectures are a necessary part of an effective instructor's repertoire.

GOALS

Since all instructors find themselves in lecture situations at one time or another, the goal of this chapter and the accompanying video tape is to provide some ideas, information, suggestions, and a demonstration that might help you, with the aid of additional effort and practice, make the most of these occasions. I would like to help you approach your lectures with confidence, enthusiasm, and anticipation rather than with fear and uncertainty.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter you should be able to
    - a) state two major objectives most likely to be achieved by the straight lecture method.
    - b) state three major objectives least likely to be achieved by the straight lecture method.
    - c) indicate one important advantage that a good lecture has over a textbook presentation of the same material.
    - d) indicate two ways in which the straight lecture method might be modified to make it a more powerful tool.
    - e) list the four main parts of a good lecture.

(Objectives continued)

2. After reading this chapter and viewing the accompanying videotape, you should be able to
   a) specify at least three items that you want to keep in mind and practice in presenting your own lectures.
   b) specify two ways in which you would adapt and change Saunders' demonstration lecture on price elasticity of demand in order to meet your own objectives and style.
3. After reading this chapter and viewing the accompanying videotape, you should be able to:
   a) list two ways in which Saunders'actual presentation in class differed from the plan he presented in this chapter.
   b) suggest two other specific changes that Saunders could make to improve his lecture on price elasticity of demand.

AFFECTIVE OBJECTIVES

1. After reading this chapter and viewing the accompanying videotape, it is intended that you will
   a) value the importance of good lectures in effective teaching.
   b) commit yourself to the effort and practice needed to approach your lectures with confidence, enthusiasm, and anticipation rather than with fear and uncertainty.

OUTLINE OF MAIN POINTS

What is Meant by "Lecturing"?

Four Big Points

1. There is no one best way to lecture.
2. Lectures are more useful for some purposes than others.
3. A lecture does not have to last the whole class period.
4. The actual presentation is only one part of good lecturing.

Dealing With Two Common Criticisms of the Lecture Method

1. Books are better.
2. Active participation is better than passive listening.

Planning

Organization

1. State at the beginning
    - Classification hierarchy
    - Problem centered
    - Comparisons and contrast
2. Itemize the main points
3. Summary at the end.

Presentation

1. Enthusiasm is important.
2. Non-verbal behavior is important.
3. Silence can be golden.
4. Some "mundane" things can be crucial.
5. Humor, catchy examples, and special tricks.
6. Variety of stimuli.
7. Standardized procedure.

Evaluation

A Specific Example: Planning, Organizing, Presenting, and Evaluating a Lecture on the Price Elasticity of Demand.

Conclusion

References

Do's and Dont's

Appendix 1: Class Handout on Price Elasticity of Demand

Appendix 2: Newspaper Clipping from Louisville Courier-Journal.

Exercises

LECTURES AS AN INSTRUCTIONAL METHOD

WHAT IS MEANT BY "LECTURING"?

There is no generally accepted, iron-clad definition of the term "lecture." But the image that usually pops into most peoples' minds when they hear this word in the context of introductory economics courses is one of "talk and chalk" -- with most of the talk flowing in one direction, from the teacher to the student, and most of the chalk being expended in drawing elaborate diagrams of abstract analytical models. We should be able to improve on this image.

FOUR BIG POINTS

I want to make four big points at the outset:

1. There is no "one best way" to lecture.
2. Lectures are more useful for some purposes than others.
3. A lecture does not have to last the whole class period -- it can be combined with other modes of instruction, and a single class period can contain more than one lecture.
4. The actual presentation is only one part of good lecturing -- much more is involved than simply talking at students.

After elaborating briefly on each of these points below, I will discuss two of the main criticisms usually leveled at the lecture method, and suggest that a good teacher may be able to overcome these criticisms in the classroom without abandoning the lecture method entirely. I also want to emphasize that a good lecture often has certain advantages over a textbook or other modes of presenting the same material.

The heart of the chapter streses the importance of planning, organization, and evaluation, as well as the actual presentation of lectures; and I conclude by working through a specific example -- a lecture on the price of elasticity of demand. As we go along, I will suggest some practical "tips" that may help a beginning instructor improve the effectiveness of his or her own lectures. Since many of these "tips" look simple-minded and obvious when they are written down in lists, I also try to provide some concrete examples from my fifteen years of experience in the front lines of the battle for student understanding in the introductory economics course. I have found that what seems simple-minded and obvious when one talks or reads about it turns out to be quite different when one tries to put it into practice in the trenches. For each of my examples, I have at least one scar; and if purple hearts were awarded for wounds in the classroom, I would be one of the most decorated soldiers of all time. Fortunately or unfortunately as the case may be, none of the wounds have yet proved fatal to me or my students, and I hope that my willingness to profit from past mistakes in a continuing quest for improvement is one reason I was asked to prepare this chapter and the accompanying videotape.

1. There Is No "One-Best-Way" To Lecture. The person who seeks some "true" magic formula that will solve all of his or her problems in lecturing to their students searches in vain. Effective lecturing is compatible with a variety of personality types and styles of presentation. Each person must develop the techniques that best meet his or her objectives, given their own taste, talents, and predilections. Needless to say, THIS AIN'T EASY! Beginning instructors must be prepared for a certain amount of hard work and disappointment as they experiment and develop a lecture style that is best for them in achieving their own objectives.

2. Lectures Are More Useful For Some Purposes Than Others. Bligh argues convincingly that the lecture method's comparative advantage lies in transmitting information and setting up a framework for analysis.[1] Lectures are often less effective than other teaching methods in promoting independent thought, developing critical thinking skills in students, and in changing student attitudes. If one wants to achieve these latter objectives, he or she should be aware of the limitations of one-way talk and chalk, and modify their lectures and/or supplement them with other devices accordingly.

3. A Lecture Does Not Need To Last The Whole Class Period. The necessity of achieving objectives for which the straight lecture is well suited (transmitting information and setting up a framework for analysis), but at the same time the desire to achieve objectives for which the

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[1] Donald A. Bligh, What's The Use Of Lectures, (London: University Teaching Methods Unit, 1971).

lecture method is not well suited (independent thought, critical thinking, and to some extent changes in attitude -- at least toward the importance of economics as a subject) often leaves us torn. The anguish diminishes considerably, however, if we recognize the obvious point that more than one thing can go on in the same class period. This is obvious, however, only after we recognize it, and I'll have more to say about this below in dealing with one of the major objections to the straight lecture method.

4. The Actual Presentation Is Only One Part of Good Lecturing. The presentation of a lecture is much like the tip of the iceberg that shows above the surface. If it is not to melt away in the vast seas of student experience, a lecture presentation must be firmly anchored on a foundation of planning, organization, and evaluation. Since all of these tasks are important, I will return separately to the problems of planning, organization, presentation, and evaluation below.

DEALING WITH TWO COMMON CRITICISMS OF THE LECTURE METHOD

Despite the fact that the lecture method has been criticized and had abuse heaped upon it for centuries, it continues to be the most commonly used teaching technique in higher education today. This is due partly, of course, to the heavy hand of custom and tradition, and the powerful force of inertia. But the vast potential efficiency of the lecture method is also a strong factor in its continued dominance of the educational scene. To be sure, bad lectures deserve all of the criticism they can get, but a good lecture, used under the right conditions, is a tremendously efficient vehicle for transmitting information.

Two of the most common criticisms of the lecture method are that "books are better," and that "active participation on the part of the learner is more effective than passive listening." Such criticisms are not to be taken lightly. Once recognized, however, their force can be mitigated. The rest of this section will discuss and partially rebut each of these criticisms, and it will conclude by noting that after all is said and done the lecture, with appropriate modifications, still has an important place in college teaching.

1. Books Are Better. Boswell reports that Samuel Johnson criticized lectures as far back as 1766 on the general grounds that "I cannot see that lectures do as much good as reading the books from which

the lectures are taken." Johnson also noted "If your attention fails, and you miss a point of the lecture, it is lost; you cannot go back as you do upon a book."

Ignoring the facts that lectures and books can be complementary goods as well as substitute goods, that many students do not and will not read the assignments in the text until they have been to class to "find out what's important," and that even in today's atmosphere of publish or perish there is still much that is not readily accessible to large numbers of students in printed form, there are three other points to be made in rebuttal to this criticism.

First, listening to a lecture can be a very different experience from reading a transcript of the same material. Hawkins, Davies and Majer note "The content may be the same, but the process is different."[2] Each member of the class may be stimulated by the awareness that many others are responding to the lecturer at the same moment, and "social facilitation" may occur during a lecture when students can see others simultaneously concerning themselves with the same ideas.

Second, a lecture can be more flexible than a written presentation. A good lecturer can organize his presentation to allow for the "attention failures" noted by Johnson (we call them "micro sleeps" now), and in college classrooms the opportunity to ask clarifying questions and review unclear points should be much greater than in the type of public lecture to which Johnson may have been referring. Also, no book ever got any instant feedback from a reader; all but the most obtuse lecturers can get clues from their students about how well things are or are not going over, however, and they can modify their presentation accordingly.

Third, and most important, the one thing that a lecture can do much better than a book is to provide a *live model of a person thinking*. A living, breathing model of setting up a problem and thinking it through or not only hearing an idea but also witnessing its development can be a memorable experience -- hard to duplicate in any other way.

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[2] Hawkins, Davies, and Majer, *Getting Started: A Guide for Beginning College Instructors*, Indiana University, mimeo., 1973, p. 23.

2. *Active Participation Is Better Than Passive Listening*. The reasons most people object to passive listening as opposed to active participation is usually based on learning theory and experiments that emphasize the importance of verbalization, reinforcement, and feedback to the student.[3] It is true that most conventional lectures do not provide a great deal of opportunity for student verbalization, reinforcement, or feedback. But once this weakness is recognized it can be mitigated by encouraging students to question you, by asking your students questions, by coupling lecture demonstrations with problem solving assignments given as homework, and/or by breaking up the lecture at certain key points. This is what I had in mind earlier in emphasizing that a lecture need not last a whole period, and I will return to this point in a minute. First, however, one might note that simply because a student's body is sitting still during a lecture does not necessarily mean that his or her mind is passive. Indeed, the student's mind is often highly active -- many times with the wrong activity -- during the lecture. The trick is to get the passive student's mental activity working in the right direction.

The last chapter of Roger Angell's terrific book for all baseball fans, *The Summer Game*, has the fascinating title "The Interior Stadium," and refers to the "interior game - baseball in the mind."[4] We want to try to make sure that it is our game and not some other game that is being played in the student's interior stadium. Active participation, learning from listening, and even reinforcement can occur during a lecture if the student tries to anticipate and implicitly or covertly predict the outcome of the speaker's discourse or argument. The student is reinforced if the speaker's next idea confirms the prediction.

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[3] But McKeachie (p. 25) has noted: "However, delay of feedback may not seriously hinder the learner in acquiring knowledge if he is motivated and the material is not too difficult." I'll indicate what might be done to motivate students, and how to deal with difficult material below.

[4] Angell (pp. 308-310) notes: "At first, it is a game of recollections, recapturings, and visions. Figures and occasions return, enormous sounds rise and swell, and the interior stadium fills with light. . . Any fan, as I say, can play this private game, extending it to extraordinary varieties and possibilities in his mind. Ruth bats against Sandy Koufax . . . Hubbell pitches to Ted Williams . . . By thinking about baseball like this -- by playing it over, keeping it warm in a cold season -- we begin to make discoveries. With luck, we may even penetrate some of its mysteries."

Returning to the point that a lecture need not last a whole period, or that one class period can be broken into different parts, it is often a good idea to stop lecturing and permit some form of response by students. A general "are there any questions?" is not likely to be as effective as asking some particular question of your own in a non-threatening manner. Rather than singling out a particular student, you might put a question on the board or the overhead projector and have the whole class meditate on the answer for a minute or so before discussing it in detail. Or you might give your students a problem and let them break into small "buzz" groups to discuss it for 2-5 minutes before reporting their answers and/or their confusion about what the problem or question means. If it is feasible, the small group technique has the advantage of promoting social interaction among classmates and giving vent to any latent needs for self expression. Students are more likely to ask questions of each other in such situations than they are to ask the instructor. Fear of asking "dumb" or "obvious" questions is also lessened when students find out they are not the only ones who don't have the foggiest notion of what is going on. And when questions from the group are discussed in front of the whole class, it is possible to cloak some individual problems in the guise "That some members of the group aren't clear on . . . "or one or two of us wonder why . . .?"[5]

The first time such a "break" to discuss a new question or problem is used, it is important to put the class at ease with a statement to the effect that "This is a tough point, and I want to make sure you understand it before going on to the next one. I'm going to put a question on the screen (board) so you can see if you really grasp the idea. Don't wet your pants, this is not a pop quiz or anything like that. Just study the question for a few minutes, and think out an answer. Then we will discuss any ambiguity in the question or any problem you might have in arriving at the answer."

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[5] Class size or physical arrangements may pose some barriers to using buzz groups, but McKeachie (p. 23) has reported "This technique seems to secure much greater student acceptance of some lecture materials. I've broken lecture sections of 500 students into six. These groups discuss a problem for ten minutes, after which I call upon some of the groups to report. After each idea or suggestion other groups which had the same idea are asked to raise their hands so that they too are involved and rewarded. The main points of the reports are placed on the blackboard and I then try to incorporate them into the lecture or at least discuss the problems involved."

If a lecture-demonstration is coupled with going over homework problems, it's important that the instructor does not do all the work himself, show off his superior knowledge, and make the answers appear to be self-evident. If the answers are self-evident, why go to the bother of assigning homework problems? If the answers are not self-evident, let the students know that you appreciate the effort they have expended. Give them some guidance at first and then gradually allow them to take over and present their own solutions. Studies have shown that in teaching students to solve problems, knowledge of how to go about them is more important than knowledge of the principle to be used (Bligh, p. 136). A live demonstration of setting up a problem and working it through can be useful at first, and it is probably important for the instructor to point out the answer or the conclusion if it appears that many students have not arrived at it by themselves, but there is a lot of evidence that the discovery of a conclusion by oneself can have considerable motivational value for a student (McKeachie, p. 33). And Beard (p. 38) reports "teachers who solve all the problems, displaying their own superior skills, tend to depress interest in all but their most able students."

Now let's turn to the four main points of a good lecture: Planning, Organization, Presentation, and Evaluation.

PLANNING

A new instructor, who has just won his professional status and is full of his subject, must strongly resist the temptation to try to cover too much material and to go into too great detail. The human mind has a limited capacity to process information, and adding too many elements to an intellectual task causes confusion and inefficiency. The German-Swedish psychologist, David Katz, even coined the term "mental dazzle" to refer to this problem; and over 300 years before this it was noted in Comenius' Great Didactic:

> If we take a jar with a narrow mouth, for to this we may compare a boy's intellect, and attempt to pour a quantity of water into it violently, instead of allowing it to trickle

> in drop by drop, what will be the result? Without a doubt, the greater part of the liquid will flow over the side, and ultimately the jar will contain less than if the operation had taken place gradually. Quite as foolish is the action of those who try to teach the pupils, not as much as they can assimilate, but as much as they themselves wish.

Our teaching objectives must be selected and stated carefully. To be useful, our objectives must be stated in a way that is meaningful to the student. We must start where the student is, and paradoxically this is often particularly difficult for new economics instructors. The fact that they have recently been students themselves often misleads them. The problem is that most new instructors have recently been successful, strongly motivated students, with a deep interest in the subject. This is not likely to be typical of the students entering his or her large (often "required") introductory economics classes.

Too little detail is to be preferred to too much, and the concrete is to be preferred to the abstract. Instead of talking about equilibrium prices in general, for example, it helps to start by focusing on a particular price that has some meaning for the student, such as tuition, pot, beer, or movies. Initial examples dealing with diagrams should have specific numbers attached, and it often pays to work them out in advance on an overhead transparency, rather than relying on blackboard work where it is often difficult to get things drawn exactly to scale. The use of overlays also helps to build up a complex diagram piece by piece in a way that can be reversed and "peeled back" for clarification in a way that is not possible with a conventional blackboard diagram. A transparency is also available for later reference, whereas limited space often forces us to erase the board.

If you plan to make a lot of use of diagrams in your presentations, it is a good idea to work out one or two homework problems that require the students themselves to draw and interpret simple diagrams. This way you can be sure that they are aware of what variables are on what axes, and it helps them get a "feel" for the data through their fingers as they connect the points on a demand curve, for example. Once the students have worked out an example involving a specific set of prices, it is easier to move to a more general form where exact numbers need not be specified and we can simply refer to diagrams where "P_1 is greater than P_2," "Q_1 is less than Q_2," etc., etc.

Since it usually involves a considerable amount of effort, forcing yourself to work out specific numerical examples and homework problems in the planning stage is one of the best ways to insure that you keep your learning objectives limited and don't fall into the common error of trying to cover too much material. If you can't or don't take time to work out examples and problems, how can you expect the typical student to get deeply involved in what you're trying to teach?

ORGANIZATION

Everything we know about learning emphasizes the importance of organization or "structure." Some structure or framework for analysis is necessary to make a subject comprehensible in the first place, and unless ideas and facts can be placed in a structured pattern in the student's mind they are easily forgotten. A knowledge of how things are related is also the easiest way to facilitate transfer of ideas to new applications. In most lecture situations what may seem like a well organized set of ideas to the speaker may not appear to be nearly as clear or so well organized to the listener, who typically has far less familiarity with and sophistication in the subject matter, and who may not know where the material fits in with other ideas, how it will be used, or why it is important. The lecturer must help them join these links. Therefore, it is important to state the organization at the beginning of the lecture, to outline or itemize the main points to be covered, and to summarize and pull things together at the end.

1. State The Organization At the Beginning. The classic dictum "First tell 'em what you're going to tell 'em. Then tell 'em. And, finally, tell 'em what you've told 'em" has much to be said for it. Many beginning lecturers feel there may be too much repetition using this format. But experience indicates that repetition which may seem "redundant" to the speaker is actually "reinforcing" to the listener.

Several different organizational patterns are available, and each has its uses for particular purposes. If one wants to cover a lot of ground dealing with an overall framework or a series of definitions, a classification hierarchy may be the most appropriate organization.

The notions of total cost, fixed cost, variable cost, and marginal cost, for example, might best be structured in this way. For other purposes a problem centered organization may be most appropriate. In introducing the notion of price elasticity of demand, for example, one might pose the question: Why is it that raising the price of some products (heroin or hooch) seems to bring in more revenue while raising the price of other products (gasoline at one local station) may bring in less revenue?[6] The organizational principle of comparison and contrast might be the most appropriate for dealing with an issue such as the national debt where the problems of false analogies abound.

Regardless of which organizational principle is being used in any particular lecture, it is important that the students know what is is, so they know what to listen for and can set up some of the implicit or covert anticipations and predictions mentioned above. (Letting them lay out the bases in their interior stadium is a great aid in helping them to deal with an Abbott and Costello's immortal question "Who's on first?").

2. Itemize The Main Points. Itemizing the main points of a lecture on the blackboard, the overhead, or a mimeographed handout has several advantages for both the lecturer and his audience. The items provide "memory pegs" on which details and examples can be hung, and they help to make it clear when the lecturer is moving from one point to another. If points are itemized, the student who daydreams or has a "micro sleep" finds it easier to realize that he has missed something, and he can ask a fellow student or the lecturer to fill him in later. Itemizing also adds memory when we can say "there are three points on this topic" or, "there are two items in this category and three in the other." In itemizing, it helps to keep lists relatively short. If you have more than five or six major points. try to break the list into parts or subgroups.

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[6] Or one of my favorite ploys on the price elasticity topic is to project a picture of farmers dumping milk from a truck or Brazilian coffee fields burning and ask "why would they do this?" When they say "to drive up the price," I say "but won't they have less to sell at the higher price?" and we are off and running.

3. Summarize at the End. In summarizing the lecture it may be more helpful to pose significant questions than to simply repeat statements of fact. McKeachie (P. 186) notes that experiments by D. E. Berlyne "found that asking students questions, rather than presenting statements of fact, not only improved learning but also increased interest in learning more about the topic." And Hawkins, Davies, and Majer (p. 26) state that questions "remind students of material they should have gained and what implications they should consider. Questions help the student structure what he has learned on the topic, in that particular lecture and cumulatively." And they continue "At the end, it is also useful to review concepts, noting how they relate to each other and to previous ones.

PRESENTATION

The beginning is probably the most important part of the lecture presentation. The day's topic(s) should be tied in with familiar material, perhaps by reviewing the main points of the preceding lecture or by citing some current event that relates to the day's lecture. You should indicate why the topic(s) is (are) important -- important to the student, not to the lecturer. Beyond the points already made under "organization" above, however, much of what remains to be said about good lecture presentations appears to be simple common sense: lectures should be delivered in a clear and confident voice that does not go too fast and varies in emphasis and intonation, aptly illustrated with a variety of stimuli and specific examples, accompanied by abundant eye contact with the listeners, etc., etc. Yet it is often frightening to sit in a college lecture room and witness the extent to which such obvious maxims of common sense are ignored, disregarded, or simply overlooked.

Other things not yet mentioned that one should keep in mind in thinking about his or her lecture presentations are: enthusiasm is important; non-verbal behavior or "body-language" is important; silence, as well as voice inflection, can be golden; some apparently mundane considerations can be crucial; a sense of humor, a stock of catchy examples and/or a few special "tricks" can be valuable aids; variety in stimuli is the spice of living through a lecture; yet it helps to develop a more-or-less standard procedure in dealing with major points in your presentation.

I will elaborate on each of these items briefly before turning to evaluating your lecture presentations.

1. Enthusiasm is Important. There is a lot of evidence that the lecturer's own enthusiasm is an important variable in arousing student interest and motivation, and experimental studies show significantly higher exam performance by students who have been exposed to enthusiastic as opposed to passive lecturers. If you can't get intellectually excited about a topic, what can you expect from your students? If you can't lecture with enthusiasm, don't lecture -- look for some other means of gainful employment.

2. Non-Verbal Behavior is Important. If you don't think that "body-language," such as facial expressions, posture, and gestures are important communicators, compare a transcript or a radio tape with a TV tape of the same presentation.

Much of an instructor's enthusiasm or lack of enthusiasm is communicated non-verbally rather than with the actual words he or she uses. If you really want to encourage students to ask questions, don't just tell them this. Greet questions with a smile, approving nod, and preface your answer with a "good question," or "I'm glad you asked that." If you appear peeved, or appear to resent an interruption of your beautiful spiel, it doesn't make any difference what you say; students will get the "clue" not to ask questions.

3. Silence can be Golden. Closely related to non-verbal behavior and voice inflection is the use of silence. A pregnant pause can be useful, and in encouraging student response to questions be sure to allow sufficient time for them to digest, meditate, and react. What may seem like a long time to you standing in front of the room may not really seem very long to the students. Develop patience in resisting the temptation to "plug" silent "gaps." How do you do this? Recall the person who stopped a man on New York's Lower East Side and asked "How do you get to Carnegie Hall?" The reply he received was "Practice, practice, practice."

4. Some"mundane" Things Can be Crucial. If your classroom is hot and stuffy, if the "black" board is a "gray" board thick with fine white chalk dust, if the window blinds are not drawn to shield the board from

glare, if a light bulb is missing, if you don't have chalk, if your handouts aren't typed on time, or if your reserve readings are not available in the library when the students need them, then it is foolish to ignore these problems and blunder about on the grounds that such "mundane" details are beneath your professional dignity. Modesty compels us to recognize that on some days opening a window, getting a wet paper towel, drawing a blind, arranging to have a bulb or a broken chair replaced, or moving the class outside is our most significant contribution to student understanding. Your concentration may make you oblivious to your surroundings, but not many students have the powers of concentration or the desire to overcome bad physical conditions. Cultivate janitors, secretaries, and librarians if you want to be sure that you have enough chalk, that your handouts are ready on time, and that your reserve readings are available. Bobby Burns noted "The best laid schemes o' mice an' men gang aft a-gley." Don't get tripped up by "mundane" details. Allow lead time and PLAN AHEAD.

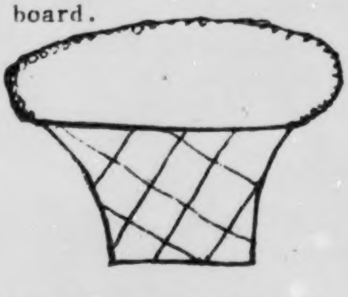
5. Humor, Catchy Examples and Special Tricks. Most lecturers have one or two favorite "tricks," ploys, especially dramatic examples, or jokes. If some way could be devised to pool and access this accumulated "wisdom" we would probably all be better off -- although what works for one person may not always work for another.

Prolonged silence, flipping an overhead projector on and off, or letting a permanently mounted screen roll up with a bang have their value as attention getters at certain key points if they are not overworked. I have also found that developing one or two ploys of continuing "inhumor" can be useful in establishing rapport with large classes. I try to keep them limited in number and reserved for key points, and they are far easier to demonstrate than to describe. One, for example, deals with a repeated harping (at my expense) on the point that the price where "the amount bought equals the amount sold" is not the same thing as an equilibrium, or a market-clearing price. It's corny and it is akin to the instructor who is worried about the audibility of his voice and asks all of the students who cannot hear him to please raise their hands. Or the instructor who takes attendance by asking all of the students who are not present to please stand up. These usually goes over big with most of my students, but I don't know if other instructors could use these ploys effectively or not.

Another device I use when I think that students are not getting the material but are afraid to ask questions is to set up a dialogue with myself in which I play the part of both the instructor and the prudent student ("prude") or the casual observer ("cas") who just happens to wander in and start asking questions. The simulated dialogue can also be used to dramatize other points such as the independence of the Fed if one wants to play the parts of both Harry Truman and Marriner Eccles or Jimmy Carter and Arthur Burns. You don't have to be a professional actor to pull this one off, but a certain amount of ham (and corn) helps.

In working out numerical examples in class, I sometimes make simple errors in addition, subtraction or multiplication and then use these occasions to dramatize my human frailties and let the students know that I appreciate some of the agonies they have gone through by exclaiming "Hell, that's only the 12th mistake I've made so far today" or an exaggerated "Heaven, that's the first mistake I've ever made in my whole life" accompanied by an elaborate show of anguish accompanied with a wink.

"Salty" language is a dangerous weapon, but a confident instructor can sometimes pull it off without offending -- particularly if he invents new words such as "bass ackwards." A confident instructor is also not afraid to admit his own mistakes, or to admit that he doesn't know the answer to a question, and humor is far more effective when it is at the instructor's not the student's expense. In talking about the importance of the items selected for measurement in dealing with price indexes, for example, I dramatize the notion of a "market basket" of goods by drawing a ludicrous picture of a market basket on the board.



My artistic "talent" then becomes a source of amusement as well as a focus for understanding. As will be seen below I try to evoke mental images of Alfred Marshall basking on a roof top in Palermo and the Indians tieing a cowboy to two horses headed in opposite directions in discussing price elasticity of demand, and so on.

A stock of "tricks" and vivid examples can be a real aid in lecturing. They best serve as devices to stimulate interest and attention; and like fertilizer, they can be useful in encouraging growth-in this case, student understanding of economics.

6. Variety of Stimuli. In addition to voice inflection and avoiding the common error of letting sentences trail off at the end, presentations can be varied by using a combination of overhead projector, blackboard work, and mimeographed handouts. In listing main points or key definitions, the blackboard or the overhead is sometimes preferable, since students may pay more attention to things they have copied themselves. (An overhead promotes more eye contact and student feedback than the blackboard; and as mentioned above, flipping the on and off switch gets attention.) But, if a series of related points is to be covered in a cumulative sequence over several periods, a mimeographed outline, with space for a student's marginal notes may be preferable. (See Figure 1, which was given to the students before the accompanying videotape lecture.) Mimeographed outlines can provide the student with an opportunity to concentrate on the big ideas unhindered by the necessity of taking detailed notes; of course, they are also very useful to students who miss classes.

FIGURE 1

Overview of Main Points Involved in Building a Model of Supply and Demand to Determine Equilibrium Prices in Competitive Markets and to Analyze Some Simple Policy Problems in Competitive Markets

I

The Nature of Competitive Markets
- Product, Time, and Geographic Dimensions
- Many "small" buyers and sellers
- Information and Independent action
- Mobility of resources and the "long run"

II

The Concept of "Demand"
- Verbal Definition
- Mathematical Equation (optional)
- Numerical Table
- Graphical "Picture"

"Downward Sloping" Demand -- Income Effect, Substitution Effect, Diminishing Marginal Utility
"Price Elasticity" of Demand -- Total Revenue Test
Change in "Demand" vs. change in "Quantity Demanded"

III

The Concept of "Supply"
- Verbal Definition
- Mathematical Equation (optional)
- Numerical Table
- Graphical "Picture"

Usual or Typical "Upward Sloping" Supply
"Price Elasticity" of Supply
Change in "Supply" vs. change in "Quantity Supplied"

IV

"Equilibrium" in Competitive Markets
Changes in Equilibrium
Interrelated Markets
- "Substitute" Goods
- "Complementary" Goods
- "Tandem" Goods

V

Selected Policy Problems
- Excise Tax Problems
- Price Ceilings and Price Floors
- The Draft, Rent Controls, Minimum Wage Laws
- Farm Price Support Programs

If the blackboard or overhead is used, be sure the print is large and legible to all, and try not to stand in front of what is written or projected. Hawkins, Davies, and Majer (p. 26) have also suggested some helpful techniques of blackboard work:

1. Write down complete statements (or words) not just symbols. Students tend to copy down just what you write and later wonder what you meant. Your notes should help recollection, not hinder it.
2. Start at the top of one panel, move down and then go up to the next. Do not skip around and do not erase a panel until all available ones are used.
3. If you are right-handed, why not start with the right-handed panel, (as seen by the class) and when this is full, move to the left. This insures that you will not stand in front of what you have written.

7. Standard Procedure in Making Major Points. Bligh (pp. 79-88) has suggested a "general form" for making important points, which in bare outline can be a useful guide or check list for the instructor in preparing and presenting a lecture:

(1) Concise statement
(2) Use the board
(3) Re expression
(4) Elaboration
  i) more detail
  ii) illustration
  iii) explanations
  iv) relate to other points
  v) examples
(5) Feedback
(6) Recapitulation and restatement

I will try to illustrate how my own special version of this"general form" can be used in the specific case of price elasticity of demand. presented below.

EVALUATION

In the most fundamental sense, your lectures are a success if the students learn what you want them to learn. If your appropriately established objectives are met, other forms of evaluation are secondary. Yet one doesn't have to wait until the test results are in to see how his material is going over -- just watch the students! Do they come on time or straggle in? Do they sit upright and appear to be interested in what's going on or are they slouched over and extending their "micro sleeps" into "macro sleeps"? Is there sparkle or haze in their eyes? Are they taking notes on the right things? Do they ask the right questions? If you are getting preliminary warning signs from these observations, there are better reactions than sulking and nursing your bruised ego in silence, or boiling up with indignant rage. And, even if you are not getting preliminary warning signs, you may want to pass out an anonymous questionnaire periodically to the students as a visible sign that you're trying to do a good job and are interested in improving. A sample of a questionnaire developed by a group of lecturers at London University and reproduced in Beard, (pp. 110 and 111) is shown as Figure 2. This is a good place to begin, but you may want to add or delete some items based on experience.[7] Whatever form you use, be sure to provide some space for students' comments, and don't wait too long to use it. If students are asked to take questionnaires seriously, they want their comments to benefit them before the course is over. They, legitimately, are more concerned over their own experiences than the experiences of the students who follow after them.

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[7] One thing I like about the London form is that it solicits the students' perceptions of some of the "mundane" factors such as light, visibility, and temperature mentioned above, and it also obtains information on the students own condition in terms of fatigue and hunger. Not all of the problems in maintaining interest or attention are the instructor's fault, and if it turns out that a large number of students are always tired or hungry at the time your class meets you want to be aware of this problem and try to deal with it, perhaps by allowing students to bring snacks, or by trying to schedule your class at a different hour in the next semester. And, with regard to the London form, Beard (p. 106) reports:

> "The lecturer gives out copies of the questionnaire, probably at the second or third lecture, explaining that he would appreciate the cooperation of the students in telling him how, in their opinion, the course could be improved. Lecturers who have done this, report that students are pleased to be consulted and take the matter very seriously . . . All of the lecturers report that one result of using the questionnaire has been improved relations with their students (even if they were already good) as well as increased interest. Students have also made some very helpful suggestions under the heading "advice for the future."

In addition to obtaining student feedback, you might want to ask a trusted friend to sit in on some of your lectures and make suggestions for improvement. But the best critic of all is likely to be yourself. Remember another of Bobbie Burns' gems:

> "O wad some power the giftie gie us
> To see ourselves as ithers see us!
> It wad frae mony a blunder free us
> And folish notion."

The advent of videotape now makes it possible "To see ourselves as ithers see us." It takes courage, but it can be done in private, and reviewing videotapes of one or two of your lectures offers a powerful tool for self-study and self-evaluation. Many of us have unconscious, annoying or distracting personal mannerisms that even our best friends, let alone semi-dependent students, are reluctant to tell us about. Often, they have to be seen to be believed -- and corrected.

Talk is cheap. So I will try to practice what I preach, by illustrating how I handle part of my own lecture on a point that is included in practically all introductory economics courses -- the price elasticity of demand. Remember, one of my objectives in writing this chapter is for you to be able to state two ways in which you would adapt or change this demonstration to meet your own objectives and style.[8] Another of my objectives is for you to indicate two ways in which the actual lecture presentation differed from the plans discussed below, and to suggest two changes that I might have made to improve my lecture.

A SPECIFIC EXAMPLE: PLANNING, ORGANIZING, PRESENTING, AND EVALUATING A LECTURE ON THE PRICE ELASTICITY OF DEMAND.

Planning. When planning my lecture on the price elasticity of demand. I did so in conjunction with a three-page reading assignment in the text (Bach, Seventh Edition, pages 317-319) and a homework problem (see Appendix #1 attached to this chapter). Give the frequent lack of

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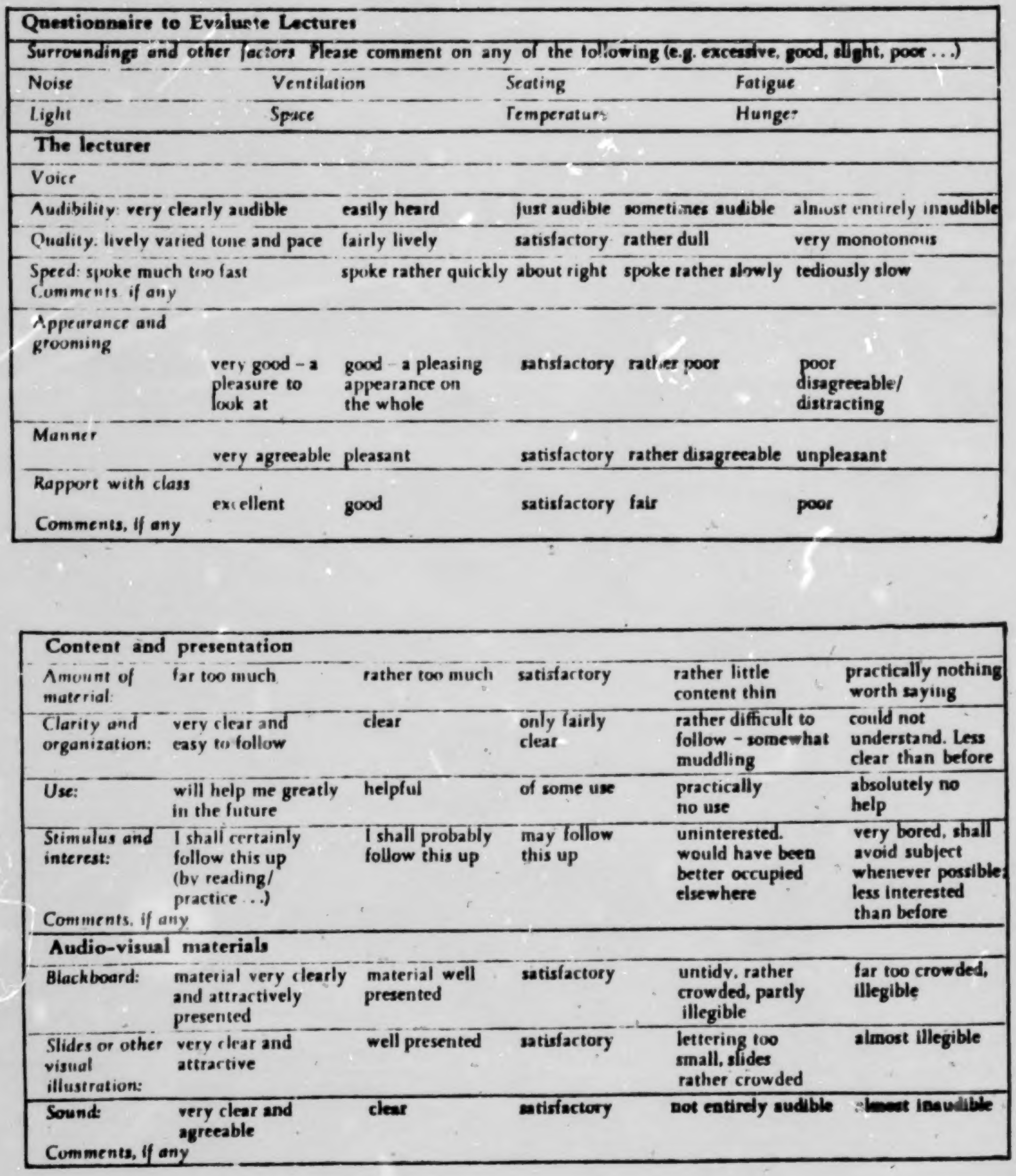
[8] The videotape accompanying this chapter was actually made about five months after this chapter was written, and is an actual class session with 360 students which was not "staged" in any way.

FIGURE 2



Questionnaire to Evaluate Lectures					
Surroundings and other factors Please comment on any of the following (e.g. excessive, good, slight, poor . . .)					
Noise		*Ventilation*	*Seating*	*Fatigue*	
Light		*Space*	*Temperature*	*Hunger*	
The lecturer					
Voice					
Audibility:	very clearly audible	easily heard	just audible	sometimes audible	almost entirely inaudible
Quality:	lively varied tone and pace	fairly lively	satisfactory	rather dull	very monotonous
Speed:	spoke much too fast	spoke rather quickly	about right	spoke rather slowly	tediously slow
Comments, if any					
Appearance and grooming	very good – a pleasure to look at	good – a pleasing appearance on the whole	satisfactory	rather poor	poor disagreeable/ distracting
Manner	very agreeable	pleasant	satisfactory	rather disagreeable	unpleasant
Rapport with class	excellent	good	satisfactory	fair	poor
Comments, if any					

Content and presentation					
Amount of material:	far too much	rather too much	satisfactory	rather little content thin	practically nothing worth saying
Clarity and organization:	very clear and easy to follow	clear	only fairly clear	rather difficult to follow – somewhat muddling	could not understand. Less clear than before
Use:	will help me greatly in the future	helpful	of some use	practically no use	absolutely no help
Stimulus and interest:	I shall certainly follow this up (by reading/ practice . . .)	I shall probably follow this up	may follow this up	uninterested, would have been better occupied elsewhere	very bored, shall avoid subject whenever possible; less interested than before
Comments, if any					
Audio-visual materials					
Blackboard:	material very clearly and attractively presented	material well presented	satisfactory	untidy, rather crowded, partly illegible	far too crowded, illegible
Slides or other visual illustration:	very clear and attractive	well presented	satisfactory	lettering too small, slides rather crowded	almost illegible
Sound:	very clear and agreeable	clear	satisfactory	not entirely audible	almost inaudible
Comments, if any					

From Beard, pp. 110 and 111.

student attention to non-lecture assignments and my past experience in lecturing on this topic, I decided to break my lecture into two parts, with a break for a previously unseen student exercise in the middle.[9] The first part of the class was to deal with the total revenue test of elasticity, and the second part was to deal with the factors that are related to different degrees of elasticity -- the amount of total income spent on the good, the availability of substitutes, the urgency of need, the durability of the item, and whether or not the purchase could be postponed. The first part was all new material, but in the second part I planned to make use of the notions of the income effect, the substitution effect, and the diminishing marginal utility which had been discussed in the preceding lecture. Here I wanted to use old concepts to shed light on the new idea of elasticity.

Given this background thinking, which I did in my head instead of writing it down, I formulated my objectives for the lecture in the first part of the class in terms of what I wanted the students to be able to do at the end of this presentation and on subsequent exams. I now write these out as follows:

1. When given a previously unseen newspaper clipping describing changes in the price of bus rides, the number of riders, and the total amount of money spent on bus rides, 75% of the students will be able to indicate whether the demand for bus service is elastic or inelastic and explain their reasoning with complete accuracy.
2. After this class meeting, and after studying for the next exam, 70% of the students should be able to select the correct alternative on a multiple choice question that gives price and quantity information and ask whether demand is elastic, inelastic, unit elastic, or something else.

Note what these objectives include and what they leave out. They cover only the total revenue test of elasticity, nothing is said about elasticity coefficients, or the differences between point and arc elasticity -- points which my twenty years of experience have convinced me aren't worth much to the vast majority of introductory students, and points which aren't worth much to me in terms of the opportunity cost they impose with respect to other ideas that I think are far more important for introductory students to learn.

---

[9] Since the class size of 360 students in the accompanying videotape prevented passing out a handout in the middle of class, the handout shown in Appendix #2 was distributed as the students entered the room for this class period.

The single homework problem, as you will note, dealt with the material in both the first part and the last part of the lecture; therefore, I had to devise a homework problem in a way that could be "split" fairly easily in going over the homework in class, and I had to have the homework problem run off and distributed to the students (see Appendix #1). I also had to prepare the handout I wanted to use in the mid-point evaluation exercise (see Appendix #2). The other materials and notes I would need had to prepared; and, finally, I had to make sure that an overhead projector would be in the classroom.

Organization. Since both parts of the lecture dealt with only one concept, which I didn't want to split into all of its logical niceties, a hierarchical classification didn't make much sense. Moreover, the students were not likely to have any familiar analogies on which to base a comparison-and-contrast organization. Therefore, I decided to use a more-or-less problem-centered approach, to be opened with a series of questions and illustrations that dealt with situations that the students could understand, and to be summarized and evaluated with an exercise problem the students had never seen before.

Presentation. After a brief review of the material on downward sloping demand covered in the preceding lecture (see Figure 1 for an idea of where price elasticity of demand fits into my overall framework for explaining competitive market pricing), I planned to open with a series of questions designed to develop the need for a concept like elasticity. Then I planned to use a previously prepared transparency of main points, including a concise definition, for the overhead.[10] Beyond this, I planned to use a modified version of Bligh's "general form" above and the following notes (some in my head, not on paper) to make my presentation.

---

[10] I wanted the students to copy the definition or "concise statement." After viewing the accompanying videotape, I wish that I had used the board instead of the prepared overhead for this part of the presentation. If I had been writing it on the board or a blank transparency as they copied I would have been less likely to go too fast, allowing more time for the words to "sink in."

Concise statement:	The degree to which the quantity demanded changes for a given change in price.
Emphasize importance and Origin:	Later applications, Alfred Marshall.
Re Express:	Move along a given demand curve, cet. par.
More Detail:	Quantity, opposite direction to price "degree" -- a "lot" or a "little"? watch total revenue -- defined as P x Q how strong is Q? pull R = elastic doesn't pull R = inelastic
Illustration:	"Paleface" -- cowboys and indians first part of homework
Further Explanation and Examples:	Case 1 and 2 in homework
Relate to other points:	brief until after feedback -- set up anticipation
Feedback:	student handout on bus fares

Recapitulate, re-state, and push on . . .

If you can make sense out of these notes, play a game in your interior stadium, and after viewing the accompanying videotape you can see if you come up with the same score I do. You can also help me evaluate the effectiveness of my lecture planning, organization, and presentation.

Evaluation. In addition to the feedback I received from students by their expressions and responses during the actual lecture, one multiple choice question dealing with the total revenue test of elasticity was included on the next hour exam, some five class meetings after the lecture shown on the accompanying videotape; and a different question on the same point was on the final exam some two months later. The questions and the percent of 360 students choosing each alternative are shown below:

Hour Exam

For the second year of New York's World Fair, the admission price was raised from $2.00 to $2.50. The number of people admitted dropped from 27 million to 24 million. Assuming that the demand curve had not shifted, what elasticity of demand is indicated?

(27%) A. a relatively elastic demand
(65%) B. a relatively inelastic demand
(3%) C. an elasticity of about unity
(5%) D. an infinitely elastic demand

Final Exam

Suppose that, as the result of a very large harvest the price of apples at Krogers supermarket fell from $1.00 per pound to $.50 per pound and that the quantity of apples purchased increased from 400 pounds a day to 800 pounds a day. Over this price range, an economist would say that the demand for apples is

(21%) A. Elastic
(4%) B. Inelastic
(66%) C. Unitary elastic
(8%) D. Impossible to determine from the information given

The fact that less than 70% of my students were able to get the correct answer to either of these relatively straight foreward questions, indicates to me that my original objective #2 was too ambitious for a large class of students with mean CEEB-SAT scores of 1010 or else I should have spent more time on this point. I lean to the latter interpretation, which may surprise you after you have seen the accompanying videotape. Even though it probably looks repetitive and obvious to you, you are not a 1010 SAT score student in a large class of 360 sophomore, about 75% of whom are required to take the course.

CONCLUSION

I hope that it is obvious by now that good lecturing, far from being an artistic talent with which people are born, is a skill which can be developed and improved with thoughtful consideration and practice.

If I may be permitted one final example from the world of baseball, consider the case of George Shuba, an outfielder for the Brooklyn Dodgers in the early 1950's, who Rodger Kahn (p. 224) notes was called "The Shotgun" because of his ability to spray line drives to all fields "with a swing so compact and so fluid that it appeared as natural as a smile." In compiling his wonderful book The Boys of Summer, Kahn visited Shuba at his home some years after his retirement from baseball and had occasion to comment on his "natural" swing. Shuba, then in his basement, reached up to a beam in the ceiling and lowered a rope with a clump of knots that hung waist high. Then he showed Kahn a bat which had been drilled and filled with lead, and went to a file and pulled out a whole ream of charts marked with X's. Kahn notes:

> "In the winters," he said, "for fifteen years after loading potatoes or anything else, even when I was in the majors, I'd swing at the clump six hundred times. Every night, after sixty I'd make an X. Ten X's and I had my six hundred swings. Then I could go to bed.
>
> You call that natural? I swung a 44 ounce bat 600 times a night, 4,200 times a week, 47,200 swings every winter. Wrists. The fast ball's by you. You gotta wrist it out. Forty-seven thousand two hundred times."

Fortunately, it doesn't take this much practice to become a "natural" lecturer. To those who want to commit themselves to this task -- good luck and Godspeed! To those who want to shirk the responsibility of a good teacher to develop good lectures -- good-bye and good riddance!

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DONT'S AND DO'S

	Don't	Do
1.	Think that lecturing is simply talking to students.	Recognize the importance of planning, organization, and evaluation in addition to presentation.
2.	Think that you can plan a lecture by glancing at the text on the way to class.	PLAN AHEAD
3.	Assume that all students are like you were as a student.	Find out where they are at.
4.	Try to "cover" everything you know about a subject.	Carefully select your objectives in terms of what you can reasonably expect your students to achieve.
5.	Use only one organization pattern for all of your lectures.	Adapt your organization to suit the nature of the topic and student experience that might be related to it.
6.	Keep your organizing plan and main points secret.	Let the students know what to expect and itemize the key items.
7.	Rely exclusively on one way talk and chalk.	Develop a variety of stimuli, examples, and teaching aids, and break your class period into different parts occasionally.
8.	Forget the importance of non-verbal behavior (including silence).	Watch yourself on videotape and note your unconscious body language and speech habits.
9.	Overlook "mundane" details.	Pay attention to "housekeeping" and "environmental" details.
10.	Talk to your notes, the blackboard, the ceiling, the window, your shoes, etc.	Talk to your students, look at them, note their posture, expressions, and the glint or the haze in their eyes -- get some feedback.
11.	Try to copy someone else's style.	Try to benefit from others' experience in developing and improving the style that is best for you.
12.	Choke up.	Relax and enjoy it.

FINALLY

DO Keep the preceeding check list. Refer to it occasionally, and modify it to keep up with your evolving experience.

DON'T Become a slave to any simple, fixed set of rules.

DO Remember that the drone who, after being told that all great short stories had one of four themes (religion, royalty, sex and mystery), still had trouble finding a publisher for his classic "My God, said the Queen, I'm pregnant. I wonder who did it?" as you try to put creative imagination into improving your lectures.

APPENDIX #1

Class Handout on Price Elasticity of Demand

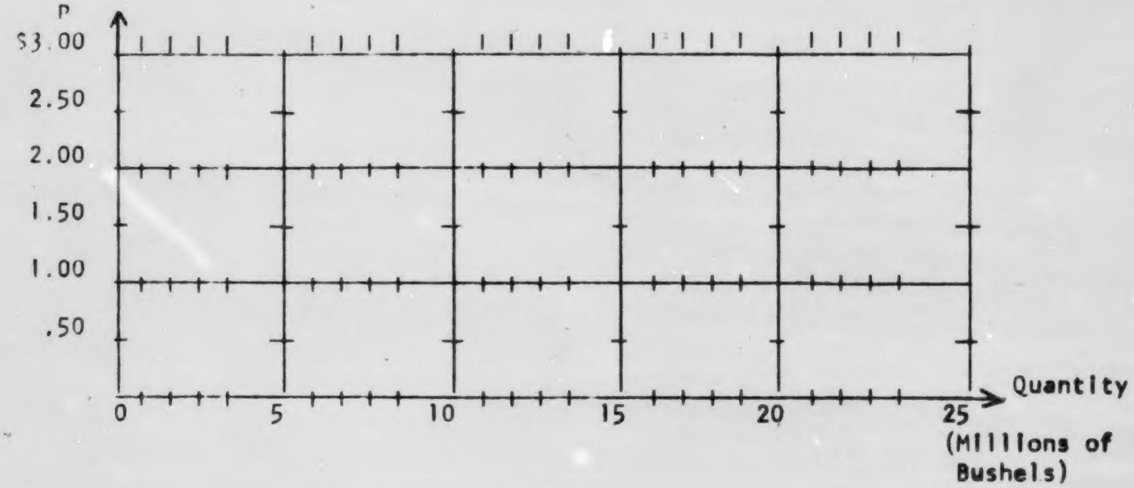
Complete for Class Discussion on 2-14-74

This sheet may be collected, checked for accuracy, and returned to you later.

Print Your Name ____
(last) (first)

Below is a table showing the market demand for wheat, other things constant. Plot these data on the axes provided, and label the demand curve "D."

P Price Per Bushel	D Quantity Demanded (Millions of Bushels)
$3.00	8
2.50	11
2.00	14
1.50	17
1.00	20



If you plotted your demand curve correctly, it slopes "down to the right" indicating that, other things constant, price and the quantity demanded are inversely related -- as price falls, the amount people are willing to buy increases; and as price rises, the amount people are willing to buy decreases. Three reasons that demand curves typically slope "down to the right", other things constant, are: the "income effect", the "substitution effect" and "the law of diminishing marginal utility" -- be sure that you understand what these words mean.

The Price Elasticity of Demand refers to moves along a given demand schedule, other things constant. If a price change causes the quantity demanded to change "a lot", we say that demand is "elastic". If a price change causes the quantity demanded to change "a little", we say that demand is "inelastic".

How do you know what is meant by "a lot" and "a little"? The simplest answer is watch total revenue or total expenditures (they're the same thing) and see which way they move when price changes. If they move with quantity we say demand is "elastic", and if they move with price, we say demand is "inelastic". Note the examples below.

Example 1: If price goes up, the quantity demanded will usually go down, and if total revenue goes down with the quantity demanded we say the quantity demanded changed "a lot" -- it pulled revenue down with it -- and demand is elastic over this interval. On the other hand, if price goes up, the quantity demanded goes down, and total revenue goes up with the price rather than down with the quantity, we say the quantity changed "a little" -- not enough to pull revenue with it -- and demand is inelastic over this interval.

Example 2: If price goes down, the quantity demanded will usually go up, and if total revenue goes up with the quantity demanded we say the quantity demand changed "a lot" -- it pulled revenue up with it -- and demand is elastic over this interval. On the other hand, if price goes down, the quantity demanded goes up, and total revenue goes down with the price rather than up with the quantity, we say the quantity changed "a little" -- not enough to pull revenue with it -- and demand is inelastic over this interval.

Example 3: If price and quantity demanded change, but total revenue stays the same, we say that demand has unitary price elasticity, or is unit elastic, over this interval.

Important point. A single demand curve can have different degrees of elasticity over different intervals. To see this, complete the table below, and then go back to the curve you plotted on the axes above and label the interval between $3.00 and $2.50 "E" for elastic since over this interval revenue moves with quantity. Label the interval between $1.50 and $1.00 "I" for inelastic since over this interval revenue moves with price. Using the part of the table you have completed, label the interval between $2.50 and $2.00 "________" (E or I) because over this interval revenue moves with ______________ (quantity/price) and label the interval between $2.00 and $1.50 "________" (E or I) because over this interval revenue moves with ______________ (quantity/price).

P Price Per Bushel	D Quantity Demanded (Millions of Bushels)	Total Revenue (Price X Quantity)	Determination of Elas. Between Intervals
$3.00	8	$24 million	Revenue moves with Q, Demand is E
2.50	11	$27.5 million	Revenue moves with ___, Demand is_____.
2.00	14	$___ million	Revenue moves with ___. Demand is_____.
1.50	17	$25.5 million	Revenue moves with P, Demand is I.
1.00	20	$20 million	

Now, do work over, can you use the concept of price elasticity of demand to throw some light on the following real situations? You don't have to write out answers, but you should thoughtfully consider these questions for class discussion.

Case 1: The X Railroad asked the State Commerce Commission for permission to increase commuter rates by 20%. The railroad argued that declining revenues made this rate increase essential. Opponents of the rate increase contended that the railroad's revenues would fall because of the rate hike.

Which of the following best interprets the information given?

1. The railroad felt that the demand for passenger service was elastic and the opponents of the rate increase felt it was inelastic.
2. The railroad felt that the demand for passenger service was inelastic and the opponents of the rate increase felt it was elastic.
3. Both groups felt that the demand was inelastic, but for different reasons.
4. Both groups felt that the demand was elastic, but for different reasons.

Case 2 is based on the following lettered sentences:

A. The football stadium at XYZ University was enlarged three years from 30,000 to 35,000 seats.
B. Since the enlargement, the stadium has never been full.
C. Tickets cost five dollars.
D. A marketing survey shows that the University's gate receipts would be lower if it charged lower prices even though the number of tickets sold would be greater.

What, if anything, does sentence D imply about the elasticity of demand with respect to price?

1. Demand is elastic.
2. Demand is inelastic.
3. Demand is at unit elasticity.
4. It implies nothing about elasticity of demand.

Case 3: How elastic do you think *your* demand for the following products is, in the price range near the price prevailing now?

Required textbooks
Football tickets to the big game of the year
Lipstick
Blue silk neckties
Gasoline
Airplane tickets home
Dormitory room
Cigarettes
Lighter fluid

In each case, see if you can isolate the major factors that make your elasticity of demand what it is.

ELASTICITY MAKES PAGE 1, OR HATS OFF TO TINSLEY STEWART. ROBERT KELSO AND THE NEW ALBANY HOME TRANSIT CO.

The Courier-Journal

LOUISVILLE, SATURDAY MORNING, SEPTEMBER 9, 1972

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APPENDIX #2

Bus fare cut lures riders, but not enough

By TINSLEY STEWART
Courier-Journal & Times Staff Writer

Last month Robert A. Kelso cut the Saturday fares on his New Albany bus line from 40 cents to 25 cents in an attempt to lure more passengers.

The experiment failed, and Kelso, a former city attorney, says he's going to have to let some drivers for his Home Transit Co. go and cut back on the hours the buses run.

"When" I don't know," he said earlier this week. "But it's imminent."

During the four August Saturdays the reduced fares were in effect, more people —2,356, an average of 589 per Saturday —did ride the buses. But the income totaled less than when fewer people rode at the higher fares.

On the most profitable Saturday in August, 667 persons paid, at 25 cents each, $166.75.

On July 29, the last Saturday before the experiment started, 551 persons paid, at 40 cents each, $220.40.

The difference — $53.65 — represents about $1,500 a month in income for the bus company.

If lowering the fares brings more riders but less money, then, Kelso said, he's not going to lower fares.

What he will do is reduce the number of drivers he has from the current 15 (there were 25 just last year) and operate the buses only in the morning and late afternoon, the periods when they are most heavily used.

Kelso, who says the bus business has been going downhill for years, thinks it is nearing bottom. He said he dislikes the idea of laying off drivers and cutting back on service. But he can't continue to operate at a loss, either, he said.

What does this article say about the price elasticity of demand for Saturday bus service in New Albany Indiana during the month of August, 1972? Why?

LECTURES AS AN INSTRUCTIONAL METHOD
Exercise 1

Review Notes
(To Be Completed Before Viewing The Video Tape Accompanying This Chapter)

1. State two major teaching objectives most likely to be achieved by the straight lecture method (write brief phrases for answers).

   (1)____

   (2)____

2. State three teaching objectives least likely to be achieved by the straight lecture method (write brief phrases for answers).

   (1)____

   (2)____

   (3)____

3. Indicate one important advantage that a good lecture has over a textbook presentation of the same material (write a brief phrase for an answer).

   ____

4. Indicate two ways in which the straight lecture method might be modified to make it a more powerful tool (write no more than two brief sentences or phrases).

   (1)____

   (2) ____

5. List the four main parts of a good lecture (write one word for each part).

   (1)____

   (2) ____

   (3)____

   (4)____

6. Can you specify at least three items that you now want to keep in mind and practice in presenting your own lectures? If so, list them in the following spaces.

(1)____

(2)____

(3)____

LECTURES AS AN INSTRUCTIONAL METHOD

Exercise 2

(To Be Use In Conjunction With The Video Tape Accompanying This Chapter)

1. Indicate two ways in which Saunders' presentation in the video tape differed from the plan presented in the chapter.

   (1) ____

   ____

   (2) ____

   ____

2. Indicate two specific changes that Saunders could make to improve his lecture on the price elasticity of demand.

   (1) ____

   ____

   (2) ____

   ____

3. Specify two ways in which you would change Saunders' lecture on price elasticity of demand in order to make it more appropriate for your own objectives and style.

   (1) ____

   ____

   (2) ____

   ____

4. Can you specify at least three items that you now want to keep in mind and practice in presenting your own lectures? If so, list them in the following spaces.

   (1) ____

   (2) ____

   (3) ____

5. Do your answers in 4 above differ from your answers to the same question (#6) in Exercise 1? (Circle one) Yes No

6. Did viewing the video tape (as opposed to just reading the chapter) add to your awareness of things you want to keep in mind and practice in presenting your own lectures? (Circle one) Yes No

   If yes, what was added?

   If no, why do your think nothing was added?

Chapter 6

IMPROVING CLASSROOM DISCUSSION IN ECONOMICS COURSES*

W. Lee Hansen

NEEDS

> "My discussion sections never really had much discussion. The instructor asked a few questions but we never got into any meaty issues we could discuss."
>
> "The instructor in this course [a small upper division course] spent almost 100 percent of the time lecturing. The few times he tried to get a discussion going failed completely. I though small classes were intended to permit discussion that can't occur in large principles lectures."
>
> "Our discussions in this course have been boring and a waste of time. Neither the instructor or the students know much about how to have good discussions."
>
> Responses from student course evaluations.

---

*This chapter is based on a method of reading and discussion developed by The Great Books Foundation, an independent nonprofit educational organization founded in 1947. The Foundation's purpose is to provide programs of continuing liberal education for students of all ages. Its staff conducts courses throughout the United States to train teachers and volunteers in the discussion method which is called "shared inquiry." The method is also presented in the paperbound Junior Great Books series for students from second through twelfth grade and in two paperbound anthologies for adults, THE SEARCH FOR MEANING (1976), BECOMING HUMAN (1977), and THE INDIVIDUAL AND SOCIETY (1978). For information, write The Great Books Foundation, 307 North Michigan Avenue. Chicago, Illinois 60601.

I am particularly indebted to Ed Moldof and Vic Moeller of the Foundation for exposure to the enriching experiences of group discussion. I am also grateful to Sally Hansen, Art Welsh, and Phil Saunders for their extensive comments on earlier drafts of this chapter, and to the many economists who have given their reactions to this approach.

Much is made of the enriched learning experience that comes from classroom discussion, and the advantages of small classes and discussion sections in achieving the benefits of such discussion. Yet few instructors in economics, whether seasoned full professors or beginning instructors, know how to lead effective discussions. As a result, effective classroom discussions are few and far between; and, as instructors, we miss the opportunity to develop a deeper understanding of and interest in our subject.

Effective discussion comes about through exploring the implications of some shared body of material which is clearly written but whose substantive meaning and significance is not fully clear as it stands. Discussion of this type not only develops the ability of the participant to think reflectively; it also stimulates the interest and increases the understanding of both the participants and the instructor.

GOALS

The goal of this chapter is to describe an effective approach to classroom discussion and to indicate the detailed strategies needed to help revitalize classroom learning in economics. In addition, a variety of exercises are provided to help you turn your classroom discussions into challenging intellectual experiences that will enhance student learning and yield you greater satisfaction in your teaching.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter, you will be able to:
    a) identify the five major elements of a framework for effective discussion leading
    b) state the four criteria for choosing materials for discussion
    c) explain the functions of each of the six types of questions described in the chapter
    d) describe at least eight major responsibilities of discussion leaders and ten major responsibilities of discussion participants
    e) summarize at least six helpful mechanical suggestions for facilitating improved discussion

2. After reading this chapter and completing the exercises you will be able to:

   a) make improvements in a set of basic and supporting questions given to you

   b) select two items of material which would be appropriate for a class discussion

   c) write a basic question and a cluster of supporting questions for each selection

   d) use one of your selections to test your skill in discussion leading before a small group of friends or in a micro-teaching setting

AFFECTIVE OBJECTIVES

After reading this chapter and completing the exercises, it is intended that you will

1. value the importance of classroom discussion in attaining the higher levels of cognitive learning.
2. develop your skills in leading discussions.
3. give discussion a larger role in your instructional planning and teaching.
4. incorporate discussion techniques into your classroom activities when appropriate.

OUTLINE OF MAIN POINTS

The meaning of Discussion

A Six-Part Framework for Effective Discussions

Course Goals

Choosing Materials for Discussion

- Four Criteria
- Sources of Material

Types of Questions and Questioning Strategies

- Basic, Supporting, and Followup Questions
- Factual, Interpretative, and Evaluative Questions
- Question Clusters
- How to Use These Questions

Responsibilities of Discussion Leaders: Ten Recommendations

Responsibilities of Participants: Fourteen Recommendations

Mechanics of Discussion Leading: Eight Suggestions

A Concluding Comment

Exercises

IMPROVING CLASSROOM DISCUSSION IN ECONOMICS COURSES

The discussion approach offers great unrealized potential for stimulating learning in economics courses. The principal functions of classroom discussion should be to broaden and extend the learning of students and instructors, develop greater sutdent interest and motivation, and generally enhance the goals of a liberal education. But effective discussion depends on more than the receipt of a few teaching tips from experienced instructors. It requires a well-developed framework that tightly relates course goals, the materials to be discussed, different types of questions and a strategy for asking them, student responsibility, and instructor leadership. Only then can the class time devoted to discussion effectively serve its purpose.

THE MEANING OF DISCUSSION

As Saunders points out in his chapter on lecturing, lectures are highly effective for presenting factual information. They can also be used to demonstrate the higher-level cognitive skills, as instructors illustrate how to interpret material, how to apply newly acquired knowledge, and how to analyze problems. Lectures have almost no value, however, in developing in the student either the highest-level cognitive skills or a whole range of affective skills.

Classroom discussion can be strong in those areas where lectures are weak. While discussion may be ineffective for imparting factual information, it affords excellent practice for students to develop the higher-level cognitive skills. It offers opportunities for getting students to the point where the highest-level skills of synthesis and evaluation, using Bloom's terminology, can be exercised. And it provides a useful way to incorporating a concern for the acquisition of the usually neglected affective skills.

The goals of classroom discussion are best achieved by exploring some commonly shared body of material whose substantive meaning and significance are not fully clear. Everyone thus starts from the material (a newspaper article on some economic event, a "case" study, or an essay by some provocative economist) or attempts to extract its meaning in a disciplined way, helping each other to think reflectively in the search for understanding.

The concept of classroom discussion developed in this chapter is not the same thing as and cannot be the simple act of asking questions and getting responses.

Many question-response exchanges between students and instructors, for instance, have well-defined but limited purposes: a student raises a question to get additional information or clarification from the instructor who then responds; an instructor directs a question to students to find out whether they are able to follow the presentation; an instructor questions individual students to find out whether they have mastered the content and the skills being taught; an instructor grills students to find out what they know for purposes of grading them. All these classroom exchanges are important in providing specific kinds of information, but they do little to generate significant discussion and higher-level learning.

Many other question-response exchanges are indeed for the broader purpose of involving students and motivating discussion. Unless the questions are of a particular type, however. These exchanges are apt to achieve the opposite of their intent, by actually discouraging students from participating in future exchanges. Three examples illustrate my point:

If the question asked is a factual question, there can be one and only one "correct" response and the students must have the information in their heads in order to answer it. Ordinarily a student will volunteer the answer, but in the absence of this the instructor must try to find someone who can provide the answer and failing that, he ordinarily covers over the awkwardness by providing the correct answer. Not only do students find factual questions dull, particularly since they seem to lead nowhere, but instructors invariably find that the student involvement produced is superficial at best and the hoped-for discussion rarely can be sustained.

If the question solicits a judgment or opinion (what do you think about this?), there may be no good basis for student responses other than the prejudices they bring with them to the classroom. Given the diversity of views likely to emerge in response to such questions, the attempt at discussion may well degenerate into a "bull session"--an exchange of ill-formed opinions--that wastes valuable time and fails to engage the thinking powers of students.

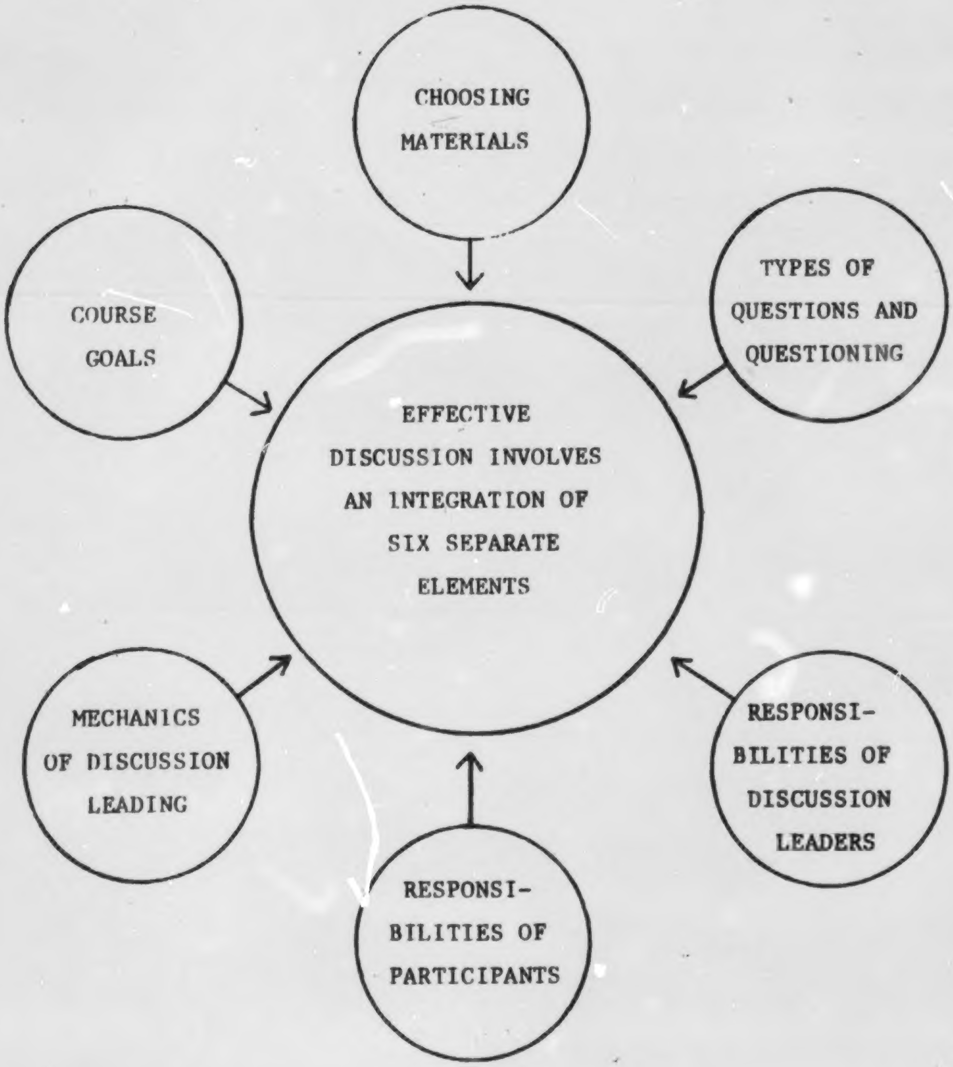
If the question is one to which there is no correct answer, students are often at a loss to respond because many of them believe there must be a correct answer--hit an answer that is not immediately obvious to them. They find it difficult to conceive of instructors asking questions for which there are not correct answers, especially given the tendency of economic textbooks and instructors in economics to emphasize the "correct" answers and solutions. They may often feel they have no basis for responding because the questions are unrelated to the materials they have studied. Instructors know that debatable questions are the most interesting ones to discuss. They should also realize that since their knowledge about the question usually exceeds that of their students by a considerable margin, they will almost inevitably end up with a monologue providing their own interpretation.

A SIX-PART FRAMEWORK FOR LEADING DISCUSSIONS

Consistently successful classroom discussions result, in contrast to the pitfalls suggested above, from the explicit bringing together of six separate elements: (1) your course goals, (2) the reading materials you select for the course, (3) different types of questions and how they are employed to facilitate discussion, (4) the responsibilities of the participating students, (5) the leadership role of the instructor, and (6) the mechanics of discussion leading. Any instructors who have tried to include discussions in their courses will have paid attention, at some level, to all except perhaps, (3) and (6). But without combining all six points together systematically, efforts at class discussion are unlikely to be successful. The six element together form a framework for discussion illustrated by the schematic shown in Figure 1.

Figure 1

The Elements of A Framework For Effective Discussions


CHOOSING MATERIALS
TYPES OF QUESTIONS AND QUESTIONING
COURSE GOALS
EFFECTIVE DISCUSSION INVOLVES AN INTEGRATION OF SIX SEPARATE ELEMENTS
MECHANICS OF DISCUSSION LEADING
RESPONSI-BILITIES OF DISCUSSION LEADERS
RESPONSI-BILITIES OF PARTICIPANTS

The rest of the sections in this chapter elaborate on elements (2) through (6) of this framework--showing how to make it operational and illustrating its application to the teaching of elementary economics. No attention is given to the existing research on discussion leading because of its limited usefulness here. My intent is to enable you as quickly as possible to turn your classroom discussions into stimulating, challenging intellectual experiences that will enhance student learning and yield you greater satisfaction in your teaching. After completing this chapter you may wish to use some of the videotapes and audiotapes which complement and amplify on the approach presented here.

COURSE GOALS

As indicated above, discussion is appropriate only if your course goals go beyond memorizing key terms and manipulating a set of fixed relationships. If, however, your course goals do call for developing deeper understanding, higher level thinking skills, and affective dimensions, these goals must be taken seriously and sufficient time must be allocated to enable students to pursue these goals through well planned discussion. It should be made clear to students that discussions are an important part of the course. One of the most frequent complaints made by students in large lecture courses with separate discussion sections is that they do not understand the function of discussion, how it relates to the lectures, and how their "discussion grade" is to be determined.

A clear statement of the student's role in discussions such as the one outlined on pages 148-51can usefully be supplemented with a statement relating discussions to your course goals and indicating how participation in discussion will be evaluated.

CHOOSING MATERIALS FOR DISCUSSION

Without suitable materials your efforts to conduct effective classroom discussions are severely limited. Of course, some effective discussions occur fortuitously. But since you can't count on chance, you must seek to produce the circumstances that offer the potential for a good discussion. This begins with the selection of material. There are several questions to ask as you search out material.

Criteria for Selection

Does the material contain a sufficient number of ideas for discussion? Whether the material contains enough ideas for discussion can be demonstrated by your ability to write down several questions whose answers you or your students are likely to be in doubt about. These questions can be about the ideas you consider important, words or passages you do not understand, passages having multiple meanings or applications, attempts to connect more than one idea in the materials, passages whose truthfulness or applications you would like students to discuss in light of their knowledge and experience, and so forth. The key consideration in deciding whether or not a particular item is rich enough to sustain discussion is your ability to write a "cluster" of questions, including one major--or basic--question and a half-dozen or so supporting questions which are related to the basic question but subordinate to it. (This distinction is published in the next section.)

Is the material self-contained? The selection should be able to stand on its own, so that there is no need to look up key terms or obtain supplementary information. Everyone should be able to come to the discussion equally well prepared and the only references necessary during the course of the discussion should be the selection itself. This does not mean, of course, that the selections cannot build on knowledge acquired from the parts of the textbook and the reading selections already covered earlier in the course.

Is the material reasonably well written? Material that is poorly written and organized will cause the discussion to get bogged down in efforts to straighten out the author's prose rather than to focus on the interpretation of the material. Trying to straighten out confused presentations of economic issues is obviously part of our task, but the emphasis should be on intellectual rather than stylistic confusions.

Is the material interesting to you or to your students? Unless there is something of real interest in the selection, as revealed by your questions, do not choose it. There are better ways to use class time than discussing uninteresting material. A good indication of the interest of the material is whether or not you want to do more reading on the topic.

Though setting out these criteria is easy, it is more difficult to feel confident that the materials selected meet these criteria. The most obvious test, that of being able to prepare a cluster of questions, is costly, requiring not only more than one careful reading of the material but also the tough and at the same time stimulating intellectual labor needed to generate useful questions about the material. The best approach initially is to use some proven materials; meanwhile, you can begin searching for other materials that fit your course objectives.

Sources of Material

Where do you find suitable material for discussion in economics courses? Let me tell you right off that it doesn't pay to look in textbooks because almost without exception they represent the "expert" view of the facts that leaves little room for discussion.

The most obvious source is the many books of readings that contain short selections by economists on a variety of topics, often accompanied by "discussion" questions. They usually are well written, and ordinarily they are interesting. The catch is that they have been screened by the editors for their economics content but not necessarily for their discussability. Many make suitable discussion material, however, because they entertain some doubt or raise questions in the reader's mind. The final test is whether you can develop a cluster of questions.

Many selections have already been well tested. An excellent article for discussion, for instance, is R. A. Radford's widely reprinted description of how markets evolved within prisoner of war camps during World War II.[1] Two other recent articles by Heilbroner and Solow focus on the state of current economics.[2] Or you can go back to Adam Smith--to his discussion of prices, for example, which is in many ways more interesting and challenging than modern textbook treatment of prices.[3]

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[1] R. A. Radford, "The Economics Organization of a P.O.W. Camp," Economica, Vol. XII, 1945.

[2] Robert L. Heilbroner, "On the Limited 'Relevance' of Economics," and Robert M. Solow, "Science and Ideology in Economics," both in The Public Interest, Fall 1970.

[3] Adam Smith, "On the Natural and Market Price of Commodities," Chapter VII, Book I of The Wealth of Nations, Modern Library Edition.

In addition, articles in periodicals (such as Challenge, The Public Interest) and chapters in recently published books (for example, Okun's recent paperback, Equality and Efficiency[4]) offer rich opportunities for exploring the meaning of an author's work.

Other fruitful sources are the various casebooks whose selections describe real-life situations or issues which are to be resolved by students through careful thinking and discussion. Care must be taken in selection here also because the quality as well as the complexity of these cases varies greatly, and some cases differ little from the textbook-type material that is not suitable for discussion. One of the best of these is the Fels-Uhler Casebook[5] which includes a careful selection of newspaper articles, some presenting "problem" cases and others "policy issue" cases. The cases not only meet the criteria outlined above but provide, in addition, a systematic way of approaching economic problems and issues.

Exposure to the Fels-Uhler approach will make it readily apparent that daily newspapers (local as well as national ones like the New York Times and Wall Street Journal) and weekly news magazines offer excellent sources of additional material. Although many newspaper articles focus narrowly on the facts of some situation, from time to time they present interesting paradoxes which can be resolved through discussion, e.g., the price of an article is going up at the same time as the quantity sold is increasing. The apparent paradox may not be particularly obscure, but your students can profit from exploring the contents of such articles to find out exactly what is happening.[6] Newspaper articles must be carefully selected because you can rarely generate more than a single cluster of questions from them and sometimes not even that.

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[4] Arthur M. Okun, Equality and Efficiency: The Big Tradeoff, Brookings Institution, 1975.

[5] Rendigs Fels and Robert G. Uhler, Casebook of Economic Problems and Policies: Practice in Thinking, West Publishing Co., 1976 (1976-77 edition). Also, see their Staff Notes, a separate publication to accompany the Casebook.

[6] Such articles also provide a highly useful transition to the next topic to be covered in the course. In this case, it would be to the effects of shifting supply and demand curves.

TYPES OF QUESTIONS AND QUESTIONING STRATEGIES

To help select the materials and later to stimulate effective discussions, it is important to understand various classifications of questions that can be asked and the role they play in discussion. One classification identifies questions by their potential for discussion; questions of fact, questions of interpretation, and questions of evaluation. Another classification identifies questions by their role in the discussion process; basic questions, supporting questions, and follow-up questions. Whether you are discussing a reaching selection such as the Radford piece, a case from the Fels-Uhler (or some other) casebook, or an article from a recent newspaper, it is important to know the different categories and types of questions.

We start with a brief elaboration of each type of question in the scheme that classifies them according to their potential for discussion.

The first classification scheme I shall discuss is the distinction among factual questions, interpretative questions and evaluating questions, all of which help to explore the meaning of the materials being read.

Factual Questions. The "facts" of the assignment are the words used by author--everything that is written in the selection. Questions of fact require participants to offer quotations or paraphrases of the material. Sometimes these "facts" may differ from other people's understanding of the "facts." But for purposes of discussing the material, we must focus on the "facts" as presented by the author. Otherwise, participants will argue about what the "real facts" are, with the result that little or no progress can be made in gaining an understanding of the material under discussion. (To resolve disputes about the "real facts" would require time-consuming independent investigation and thereby delay the discussion.) For our purposes, then, the author's words are accepted as facts. A factual question about the Radford article would be:

> "What were the sources of the prisoners' supplies
> of rations?"

(The answer is found in the eighth paragraph of the article.)

Interpretative questions. These questions ask participants to explore what the author meant by what he said. For example, the discussion leader might ask about the meaning of a particular word or sentence or paragraph, about the belief or intention of the author, or about possible connections among ideas, actions, and statements in the reading. Questions of interpretation all require that the answers or opinions offered by the participants can be supported by evidence from the reading. In contrast to factual questions, interpretative questions require the statement of a conclusion which can then be supported by evidence. Since the evidence requires some kind of logical leap or inference to reach a conclusion, there is no right or wrong answer; different people will arrive at different conclusions and hence hold different interpretations. Moreover, the same person may be able to offer several different interpretations for the same question, by citing different bits of supporting evidence or through different processes of reasoning about the same evidence. It should be noted that the word "interpretative" is used here in a different sense from that used by Bloom (see Saunders' Chapter on Instructional Objectives). The search for interpretative questions in newspaper articles is usually more difficult than in longer readings, owing to the factual nature of the articles and their relative shortness. Yet, as noted above, newspaper articles on economics frequently develop paradoxes or contradictions that can be used as interpretative questions. Several of these are illustrated by the selections included in the Exercises.

A good interpretative question about the Radford article is:

> "What does Radford say accounts for the development of an exchange system in the P.O.W. camp?"

This question takes a bit of digging to find out what Radford says. After some work the participants will find his mention (not necessarily direct) of tastes and preferences; other responses will also be forthcoming. The discussion will be lively as students try to come to a resolution of the different forces and their relative importance in accounting for the emergence of the exchange system. Another interpretative question that takes a slightly different approach is:

> "Does Radford believe that the exchange system in the camp operated effectively?"

Evaluative Questions. These questions ask participants to consider the material in terms of their own experience and to determine in what respects a person agrees or disagrees with the author's meaning, or to what extent the selection has application to the person's own life. These questions require the discussant to relate the material under discussion to his or her own experiences. Questions of evaluation should be based upon knowledge and experience that discussants possess as a result of reading the assigned selection. Without such common background most participants will be unable to share in the answers and to learn from them. An evaluative question about the Radford article would be:

> "Do you believe the Germans should have allowed
> this exchange system to develop and operate
> within the P.O.W. camp?"

There is likely to be considerable disagreement about this question, with the discussion soon going to the heart of economics--centralized versus decentralized control. Another example would be:

> "Do you believe the Germans were wise in allowing
> the exchange system to develop in the camp?"

Some economists might argue that evaluative questions are "normative" questions (what ought to be) which they disdain in favor of "positive" (what is) questions. Yet economists regularly reach their own conclusions and judgments about economic events and issues, and they defend this practice because of the prior analysis they have undertaken. This is exactly what we want students to learn to do through discussion. Our aim is to teach students to develop their own conclusions on the basis of their careful analysis of what the author said.

The second classification scheme, as you will remember, categorizes questions according to the role they play in discussion. I shall again discuss each type of question in turn.

Basic Questions. Basic questions are interpretative questions that can lead to an extended discussion of what you consider to be some of the main ideas in the material. They are questions through which you hope to increase your knowledge of the material because either you do not have a satisfactory answer to them or you do not believe your answers are the only acceptable ones. Basic questions raise not just one but several problems of meaning that you want to explore. Basic questions help to clarify and develop the ideas you think are important. A discussion should always start off with a basic question. The first interpretative question suggested for the Radford article is a good basic question:

> "What does Radford say accounts for the development of an exchange system in the P.O.W. camp?"

This is a good question to start off the discussion because it offers the possibility of posing a number of supporting questions (see Figure 1).

Supporting Questions. Supporting questions are generally also interpretative questions; their purpose is to help explore the basic question. Supporting questions all have something to do with the basic question but usually each supporting question usually addresses only one aspect of the basic question. By turning to the supporting questions when there is no immediate resolution of the basic question, participants are helped in their efforts to explore the material so that later they can answer the larger basic question. In effect, the cluster of supporting questions represents a planned attack on the basic question. Evaluative questions can also be used as supporting questions. They should include the cluster, however, to allow the participants to express their personal views, but only after they have worked to resolve the basic question. It is not wise to settle on a specific evaluative question before the discussion takes place; the course of the discussion itself may suggest a different evaluative question.

A cluster of questions for the Radford article is shown in Figure 2. (See p. 142.)

These clusters of questions are not easy to develop at first. Nor will you get much help from most readings books. For example, you might find the following "discussion" questions listed at the beginning or end of the Radford article reprinted in a readings book:

> "Why did a system of exchange develop among the prisoners, and what is the parallel case for exchange in the world outside the prison camp?"

or

Figure 2

Cluster of Questions for Discussion of Radford Paper

Basic Interpretative Question:

--What does Radford say accounts for the development of an exchange system in the P.O.W. camp?

Supporting Interpretative Questions:

--Can the development of the system be explained by the equality or lack of equality in the distribution of supplies?

How equally were the supplies distributed? (This is a factual question that could be inserted if some people were not quite certain how the supplies were distributed.)

Were the supplies always equally distributed? (This is another factual question that might help clarify the discussion since the response to the supporting question might depend upon the particular time period mentioned in the Radford article.)

--Were prisoners generally unhappy with their particular allotment of supplies and thereby motivated to develop an exchange system?

--What views does Radford offer about the relative importance of these forces in accounting for the evolution of the exchange system?

--To what extent does Radford think that differences in preferences gave rise to exchange?

--Does Radford believe that prisoners might have developed an exchange system because of their prior conditioning, i.e., they came from exchange economies?

Evaluative Question:

--What weight would you assign to the various forces Radford notes as having contributed to the development of the exchange system?

> "What determined how elaborate or simple this prison market system became? What determines the extent to which we develop and use markets in everyday life?"

These are useful starting questions but they don't go far enough. By contrast, detailed clusters of questions can help students learn how to delve deeply into an author's meaning, discover the satisfactions that come from such delving, and develop a facility for framing questions for themselves. For the Radford article you can develop perhaps two or three additional clusters simply because the article is so provocative and wide ranging. By contrast, as I have said, for the average newspaper article a single cluster will be the most you can hope to develop.

If you follow the case approach, the path is much easier. Fels and Uhler, for example, have developed a format and offer a number of questions for each of their selections, thereby providing a ready-made approach to discussion for both instructors and their students. Particularly in the policy cases, Fels and Uhler offer a series of questions which constitute a cluster--focusing on interpretative questions while making use of factual questions to help clarify matters, and concluding with questions of evaluation. It is instructive to compare the approach outlined here with that of Fels and Uhler to see the basic similarities. Both approaches assume that there are no right answers and that it is the search for understanding that constitutes the purpose of discussion.[7]

Followup Questions. Followup questions facilitate the exploration of basic and supporting questions by encouraging the participants to think for themselves as they respond to the instructor's cluster of questions. These questions are also designed to help move the discussion along the most productive channels by requiring participants to go beyond superficial responses--to clarify their remarks, to support their comments, to involve other participants, and to maintain focus on the material. Whereas supporting questions probe the topic, i.e., the basic question, followup questions probe the participants. Examples of various followup questions, given in Figure 3, are equally applicable to a selection like the Radford paper or one of the cases.

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[7] Responses to the case questions can be written out because of the more rigid format the case approach provides.

Figure 3

Followup Questions

To Clarify. You ask for more information or meaning by replying:

--What do you mean?

--Can you rephrase what you said?

--Can you restate what Radford said in your own words?

--Can you explain that further?

To Support. You ask the participant to support a response by replying:

--Where do you find that in the Radford article?

--What did Radford say that supports your point of view?

--Is there any evidence from your textbook which would support what Radford says?

To Involve Others. You ask one participant to pick up on another participant's response by replying:

--John, would you care to add to what Mary just said?

--Mary, do you agree with John's interpretation of Radford's statement?

To Maintain Focus. You redirect attention to the material by asking:

--How does your comment relate to Radford and the P.O.W. camp article?

--What you say about planned economies may be true, but why is it that prices continue to fluctuate in the camp?

--We still haven't answered our basic question, so let's come back to it. I'll repeat it: What Does Radford mean by . . . ?

****

/ A knowledge of how and when to use the various types of questions is important to good discussion. Here are two suggestions.

(1) Know when to ask basic, supporting, and followup questions. A basic question should be used to begin a discussion, to continue the discussion after a previous basic question has been resolved, and to focus a discussion when students introduce a problem that interests them and which you want to pursue with them.

When students cannot respond to the basic question, turn to the supporting questions which address related but subordinate ideas. By working through the supporting questions, participants will be helped in resolving the basic question.

Followup questions are asked to move the discussion along toward resolution of the basic question and to ensure that participants think reflectively as they discuss the material.

(2) Stress questions of interpretation but know when to use questions of fact and evaluation. Because your purpose is to increase your own and the participants' understanding of the material, questions of interpretation should be stressed. However, if the group is not accurately remembering what the author said, or is offering interpretations that are factually incorrect, doubtful, or insufficiently documented, ask questions of fact. But don't allow the discussion to become merely an exercise in memory.

Questions of evaluation dealing with the merit of the material or extent of agreement with the author are meaningful only after the group has thoroughly discussed related questions of interpretation. An evaluation question may look like an easy way to get a discussion started, but it can quickly turn the discussion into a polling of likes and dislikes or a defense of premature or hasty judgments.

Questions of evaluation which draw on the participants' experiences may be used whenever the group is unable to understand the author's ideas, images, and actions. Turning briefly to the participants' personal experiences can generate new ideas that will help them interpret an author's meaning. But such questions should not be allowed to lead to an investigation of topics that do not require the use of the material; otherwise the discussion will quickly lose its purpose and run the danger of becoming a recital of opinions about matters unrelated to the material at hand.

RESPONSIBILITIES OF DISCUSSION LEADERS

To develop the ability of the participants to think reflectively and at the same time to increase both the leaders' and the participants' understanding of the material under discussion, the leader must be constantly asking questions, evaluating responses, and asking further questions to help reach an understanding of the basic question. The leader must challenge unclear, factually incorrect, or contradictory statements by asking further questions. And the leader must evaluate all responses according to his best judgment--selecting those statements he wants to question immediately, ignoring those he finds uninteresting, trivial, or irrelevant, and tabling those he may want to pursue later.

The value of discussion as an educational experience depends upon how well a leader carries out these functions. Here are ten recommendations that will help you succeed as a discussion leader.

(1) Read Carefully. The questions you decide to ask your group should evolve from a thorough and thoughtful reading of the selection. Write down questions as they occur to you, using the criteria on pp. 135-36 above.

(2) Prepare Clusters of Questions in Advance of Discussion. Sharpen the questions you believe will prompt interesting and profitable examinations of the material. Discard questions that do not seem to go anywhere. Write down new questions that arise as you work with your ideas. Arrange all questions in clusters, distinguishing between those that are basic and those that may be appropriate as supporting questions. Decide on the basic questions you wish to ask the class.

(3) Pose Your Questions Carefully. Ask one question at a time and keep your questions brief and clear. Long, involved, questions usually indicate that you haven't given enough thought to an idea. Try to ask questions tailored to the material under discussion rather than general questions that would apply with little or no change to any one of several different selections. Avoid questions that indicate the answers you expect, questions that cannot be answered from a

reading of the material, or questions that force the participant to draw on outside material.

(4) Develop a Discussion in Depth. Stick with the subject introduced by your basic question so as to develop all its implications. Give the group time to think about the material in light of your basic question. You may have to ask the same question of several participants or rephrase it without changing the subject. Do not be apprehensive if some time elapses while participants reflect on your question or search through the material to help them respond.

(5) Strive for Answers. Don't be content with superficial responses or attempts by the participants to leave a question just because it is difficult. Use their answers as the basis for new questions that will help the group to reach a deeper understanding of the material. At the same time, keep in mind that some questions cannot be answered to everyone's satisfaction.

(6) Avoid Difficult or Technical Terms. If you introduce terms that are difficult to define, such as marginalism, monopoly, and cost when they are not in the material, you will interrupt the group's exploration of the author's meaning by diverting their attention to words that cannot be defined in context. By so doing, you encourage the group to use impressive sounding words as a substitute for thinking about the material in more specific language. You also deprive the group of those moments of discovery when they find their own words to embody the ideas they have been examining. Terms that evolve in this manner can be the high point of the meeting and provide an excellent means for you and the participants to remember the discussion.

(7) Listen Intently. This will help you to ask relevant supporting and followup questions. It will also give you ideas for basic questions and indicate whether a particular line of inquiry should be abandoned. Avoid the tendency to let your mind wander ahead to the next question. When someone is still talking, hear them out before proceeding.

(8) Involve Each Participant. Invite participants into the discussion by prefacing your question with the name of the person to whom you want to direct it. If possible, make sure questions are

directed to every participant during each meeting. Encourage participants to ask each other questions and to speak up freely without raising their hands or waiting to be acknowledged by the leaders. If possible, seat everyone around a table or in a circle; the physical arrangement reinforces the idea of equal participation.

(9) Confine Yourself to Asking Questions. Your role is to lead the discussion. This can be accomplished by giving your full attention to the material and the ideas of the participants. Reject the impulse to interject your own views.

(10) Evaluate Your Discussion on the Basis of a Formal Critique Sheet. A suggested critique sheet is shown as Figure 4. It concerns itself with what you learned about the effectiveness of your leadership, what you could have done to improve the discussion, and whether you learned anything new about the material. The key to growth as a leader is learning something new from each discussion about the material and your technique of discussion.

RESPONSIBILITIES OF PARTICIPANTS

Many discussions flounder because participants do not know how to conduct themselves in a classroom discussion. They probably have not been exposed to many exemplary discussions in the past; they are given no training in discussion by their instructors; and they may have become cynical about the effectiveness of classroom discussion based on their experiences in previous courses.

The most obvious and direct remedy for this situation is to provide your students with a set of guidelines that lists their responsibilities as well as various do's and don'ts. The guidelines shown in Figure 5 are examples of what you might use. Take a few minutes of class time to go over these guidelines, reading them aloud, and commenting on some of the points listed. This will help indicate the importance you attach to having agreed-upon procedures for conducting your discussions. From time to time during discussions you may find it necessary to refer back to the guidelines so that participants become aware of the need to guard against lapses. You will find that as participants gain experience their lapses will steadily diminish.

Figure 4

Discussion Critique Sheet

The questions presented here can be asnwered most easily if you tape record your discussion session and then replay it later on. A review of tape recordings provides perhaps the most effective, inexpensive and convenient way of learning how to improve your skills in leading discussion.

--Did you involve everyone?

--Did you call on people by name?

--Did you limit your role to that of the leader?

--Did you stick to the basic question?

--Did you make effective use of supporting questions?

--Did you use followup questions to good effect?

--Were you able to resolve the basic question?

--What unsolved issues remained at the end of the discussion?

* * *

In retrospect, how might you have altered your questioning approach? By recasting your basic question? By altering your supporting questions and the way you used them? By changing the frequency and use of followup questions?

Do you believe that the discussion gave you new insights and knowledge about the material that was discussed?

Figure 5

Guidelines for Participants

We have several purposes in discussion. One is to improve your ability to think clearly and independently, to express yourself effectively, and to listen attentively. Another is to increase your understanding and your instructor's understanding of the materials you have both read. To accomplish these purposes at the same time, we assign different jobs to you and the discussion leader.

The leader will start each discussion with a basic problem about the author's meaning. The problem will have arisen because the leader is not sure of the answer, or because the leader thinks that the participants are not sure of the answer. The leader will ask you questions to help you explore your ideas of what the answer might be. The leader will encourage you to agree or disagree with what the other participants say and to back up your opinions with reasons based on your reading of the material. During the discussion the leader is not permitted to offer answers or to suggest what answers to give.

You, in turn, will get the most benefit and enjoyment from the discussions if you observe the following guidelines which are designed to help the participants think for themselves and to make the best use of the time to discuss the material.

1. Read the material carefully before coming to the discussion. Cover the material twice if possible. When reading, keep pencil in hand so as to record your questions. ideas, and interpretations of the material. Underline concepts, ideas and words that strike you as important. You will not be allowed to participate in the discussion if you have not read the assigned material.

2. Always be prepared to back up your opinion of what the author means by reading from the material, giving an accurate summary of what the material says, and/or offering reasons and examples from your own experience where appropriate. To accomplish this you must bring the assigned material with you to class.

3. Do not bring in outside material unless everyone in the group has read it. If you do discuss outside material that all group members are familiar with, you may do so only insofar as it relates to the problem under discussion.

4. Do not introduce outside authorities to lend weight to your opinions.

5. Challenge opinions you do not agree with by offering your opinion and then supporting it.

6. Challenge any assumption in the leader's questions with which you do not agree and supply evidence from the assignment to back up your challenge.

7. Be willing to change your mind when someone shows you an error in your opinion or in your use of the facts.

8. Answer the questions the leader has raised before making additional points.

9. Ask for clarification of any point or term you do not understand.

10. Stick to the subject. Do not introduce ideas that have no direct connection to the problem being discussed.

11. Listen carefully. Don't be so preoccupied with your own ideas that you couldn't give a summary of what others are saying.

12. If someone else makes more or less the same point you wish to make, don't repeat it.

13. Do not interrupt when someone else is speaking. Be willing to withhold your remarks if you start at the same time as someone else does.

14. Do not continue to talk after you have made your point.

MECHANICS OF DISCUSSION LEADING

In addition to the responsibilities of the discussion leader outlined above, there are some "tricks of the trade" concerning the mechanics of discussion, little things that will smooth and make more effective the verbal exchanges that occur. Most of these involve explicit decisions by the instructor-leader. They reflect my belief that more structure is better than less structure. Here are nine "tips" for handling discussion mechanics.

Seating. Does it matter how the students are grouped in the classroom? Yes, it does. Ideally, all the students should be seated around a table, or around several tables pushed together in the center of the room; alternatively, if the chairs are movable, they can be formed into a circle. The advantage of any of these three arrangements is that students can look directly at each other as they speak; in addition, the front center of the room where traditionally the teacher is situated no longer represents the focal point. If the room cannot be arranged in this fashion, then one must improvise. The objective is to facilitate face-to-face contact among the participants. If there are not too many students, for example, they can form themselves in a U-shaped pattern by filling the back row or rows and then taking seats along opposite walls of the room; this leaves the center part open, thereby permitting those on the side a certain amount of eye contact by turning themselves in their seats.

Position of the Leader. Where should the leader be located and should the leader sit or stand? If the participants can be seated around a table or otherwise formed into a circle, then the leader can take any position around the table or circle; this decreases the leader's otherwise dominant position and thereby helps to encourage participants to talk to one another rather than only to the instructor. If the seats are fixed but students can arrange themselves into a U-shape, then the instructor can move into one of the rows and occupy a position at what would be the center point between the two arms of the U.

Calling on Students. Should the participants be called upon by name? My answer is "yes." Not only does calling students by name help to personalize the learning process; it also enables participants to speak directly to each other both inside and outside of class. When students know each other by name, this helps to create a feeling of community, which is essential in facilitating learning through classroom discussion. Calling on students by name also heightens the sense of responsibility that is essential to successful discussion. All too often instructors ask questions and are greeted by silence; because of the unbearable nature of this silence, instructors usually answer their own questions. Or they are greeted by the raised hands of students who know all the answers or who feel compulsive about talking: as a result, everyone else gets off the hook, and sometimes the actions of the volunteers intimidate other students. By using names you make a specific request for an answer to your question. If you ask a basic question, for example, you might begin by stating the question to the entire class. You may even want to repeat it so as to give students time to begin thinking about it. After that, you can turn to a specific student and say, "Mr. Jones, according to Radford, how did the market system operate in the P.O.W. camp?" This alerts Mr. Jones that he had better listen closely. After asking a question, give the student time to respond. Ten to 15 seconds may be required for a student to collect his thoughts. If need be, then you can repeat the question, directing it to another student.

Seating Charts. How do you learn the students' names so that you can call upon specific individuals? This may sound like a foolish question for those of you with excellent memories. But faculty whose memories are weaker frequently bumble along by simply nodding or pointing at students to indicate recognition. There is an easy way to resolve this problem. Make a seating chart, but not the usual kind that is filled out by students. Instead, bring to class a large sheet of paper (old computer paper works well) and a felt-tip pen. Announce that you intend to learn the names of the students and that you will be constructing your own seating chart to aid you. (You might want to suggest that students also make their own charts.) You start by asking the person in one of the corners of the room to pronounce his name and then spell it, and to do it loudly enough so that everyone can hear. Then, repeat the name and its spelling to ensure that you have it right; meanwhile print the name and its spelling to ensure that you have it right; meanwhile print the student's name in the appropriate location on your seating chart. Continue until you have everyone in the class listed. Even with 30 students this will take no more than a couple of minutes. Then, as the class proceeds, make use of the chart. If you intend to call upon a student, look for the student's name and then use it. If a student asks a question, use the chart to identify the name and then use the name in making your response. After making out the seating chart several times you should know most of the students' names. However, you should not give up using the seating chart. Making out a new chart at each meeting automatically gives you a record of student attendance; it also permits you to note down questions brought up by students but which you prefer to defer answering until some other time, and it permits you to note down interesting ideas that you want to discuss later. Finally, you can mark the seating chart to keep track of who has participated in discussion.

Involving Students. Should you involve everyone? Yes. Make it clear from the start that involvement and participation are the keys to learning via discussion. Inform students that you as leader are there to ensure that everyone gets a chance to participate. You can deal with shy people just as you do with others, by calling on them. If you are aware that a person is shy, you may want to ease the person into the discussion by asking an "easier" rather than a "harder" question (asking for a restatement of what someone else said or for a clarification of what someone else said). Actually, a well-run discussion group will never permit the identification of anyone as being shy; your efforts to involve everyone will help ensure that shyness cannot be allowed to take root. Since shy people often have much to contribute, there are great potential gains for the class by getting everyone involved fully from the very beginning of the course.

Encouraging Questions. How do you get people to ask questions about matters they don't have answers to? This is an important issue because frequently students believe that by asking bona fide questions they will expose their own ignorance, not only to the instructor but also to their fellow students. The virtue of the discussion approach outlined here is that you show them by example how to ask questions, questions that arise because in many cases you, the instructor, don't have answers to them either, or because the answers may not be as clearcut as the answers to the usual classroom recitation questions. By observing this process, students will be much better equipped by the end of the semester to ask questions about their reading and understanding of material. They will learn that they must read material closely to find out what the authors are talking about. They will also find that they have in their own minds questions about meaning and interpretation--questions that are quite similar to those you raise as a leader. As time goes by they will feel more and more comfortable with this approach.

Reaching Closure. How do you close off a discussion? Too often we are inclined to summarize at the end of a discussion before moving on to another topic. This is not usually a good practice because it injects you and your views into the discussion. Moreover, the discussion may not have run its full course. Rather than having the leader announce explicitly that the discussion is at an end, one can usually detect when the end is nearing by observing the reduced volume of questions from students and various non-verbal body signals (nods of agreement, arms folded, vacant gazing). If there does seem to be need for a summary, ask one or two members of the group to do it; this will be much more effective than your doing it. Another method is to ask the group if most feel the issue has been satisfactorily resolved. Their responses will do the job.

Emphasize Student Responsibility. What do you do if students haven't read the assignment? If you have explained to students your purpose in having class discussion and their responsibilities for its success, this should not be a problem. But if you find that a substantial number have not read the assignment, a positive approach is to suggest that everyone take the first few minutes of class time to read or review the material. Then proceed with the discussion. In fact, the freshness of the material in people's minds may greatly invigorate the discussion. This suggests that you urge students to not only read it before class but, if possible, to review the reading just before they come to class or during the minutes they are in the classroom before discussion begins.

A CONCLUDING COMMENT

To some readers the approach presented here may seem overly structured and rigid. Yet it is through structure that we can find freedom--in this case, the freedom to pursue systematically and collaboratively the interesting questions that arise out of the reading we do in economics. The structure provided here is designed as a guide to you and your students in developing the capacity to engage in fruitful and stimulating discussions. While considerable work is involved in mastering the approach, its benefits will have lasting value in sharpening students' reading and thinking skills, deepening their knowledge of economics, and contributing to the goals of a liberal education.

IMPROVING CLASSROOM DISCUSSION IN ECONOMICS COURSES

Exercise 1

Review Notes

1. Summarize the six major elements of the framework for effective discussion and briefly indicate the role of each element.

   (1) ______________________________

   (2) ______________________________

   (3) ______________________________

   (4) ______________________________

   (5) ______________________________

   (6) ______________________________

2. State the four criteria recommended for use in selecting material for discussion?

   (1) ______________________________

   (2) ______________________________

   (3) ______________________________

   (4) ______________________________

3. List the six different types of questions used to conduct effective discussions and the purpose served by each type of question.

   (1) ______________________________

   (2) ______________________________

   (3) ______________________________

   (4) ______________________________

   (5) ______________________________

   (6) ______________________________

4. Write down eight of the ten major responsibilities of discussion leaders?

(1) ______

(2) ______

(3) ______

(4) ______

(5) ______

(6) ______

(7) ______

(8) ______

5. Write down ten of the 14 guidelines for participants?

(1) ______

(2) ______

(3) ______

(4) ______

(5) ______

(6) ______

(7) ______

(8) ______

(9) ______

(10) ______

6. Summarize the general thrust of the suggestions for handling the mechanics of discussions.

7. Check below the statement which best reflects your current appraisal of the discussion approach discussed in this paper.

(1) Excellent. I look forward to trying it out in my class.

(2) It is much too structured for my taste.

(3) Discussion is too time consuming to help students acquire the kinds of skills I try to teach.

(4) I think there are better ways of handling discussion.

Exercise 2

This newspaper column is followed by a basic question and a cluster of followup questions. Make whatever revisions you think are appropriate in these questions.

WHO ARE THE HIGH PRICE CULPRITS?

By *Sydney J. Harris*

We stopped buying bacon around the end of summer, when our favorite breakfast brand leaped in one week from an already outrageous $2.40 a pound to an unbelievable $2.74 a pound. In the country yet.

What is so frustrating about this kind of thing is the difficulty in pinning down the culprits, if any. Our grocer isn't making any more profit out of these rises--in fact, they are hurting sales. The bacon is piling up in the case, and being returned.

If you ask the makers, they will carefully show you how their costs have risen for everything--for raw products, for labor, for packaging, for distribution and transportation. The packaging people say the same; so do the truckers, and everyone else involved.

Either somebody is lying, or the whole economic process doesn't make sense. If labor is getting "too much," why are most working families struggling to make ends meet? If grocers are "profiteering," why do they get glummer as prices go higher? And the farmers who supply the pork in the first place certainly aren't living high on the hog these days--most farms of ordinary size are barely making it.

Where does the buck stop? Nobody knows. And so each segment blames another for the vicious spiral, and each justifies its own increases by pointing to its own rising cost of doing business.

But this is manifestly impossible; inflation must start somewhere. Economics is a rational discipline, and effects must have causes. It is not an endless chain, moving on its own volition, so that human agencies are powerless to stop or reverse its movements.

What makes for unrest, resentment, and finally radicalism among the public is our combination of ignorance, frustration and suspicion that somewhere, somehow, the mechanism is being manipulated by forces we neither recognize nor control—that others are making unconscionable profits while the rest of us pay through the nose.

This may or may not be true; the ordinary citizen has no way of knowing. We are not skilled in economics; all we know is what we make and what we spend; and, in times like these, we are like the Red Queen in "Alice"--running as fast as we can just to stay in the same place.

Even the classical law of "supply and demand" seems to have become subverted: for prices continue to rise while demand is abated. The market no longer seems to control prices when they keep escalating despite reduced consumption. Some strange new twisted law appears to be operating in place of the classical formula of the "free market."

I am not versed enough in economics to understand what is going on; neither are most people. And all the conflicting versions of who the ultimate culprit really is seem to cancel one another out. The last person you listen to always sounds the most plausible--until the next "explanation" comes along. Meanwhile, I sure do miss that morning bacon wafting its fragrance through the kitchen.

Wisconsin State Journal October 10, 1975

Cluster of Questions for Harris Selection

Basic Question

Who does Harris think is to blame for high prices?

Supporting Questions

What does he say about each of the various groups who might be viewed as culprits? Grocers? Makers? Labor? Farmers?

What does he say about market forces? Supply and demand?

What does he say about economics and economists?

Is there any reason to expect to find a culprit?

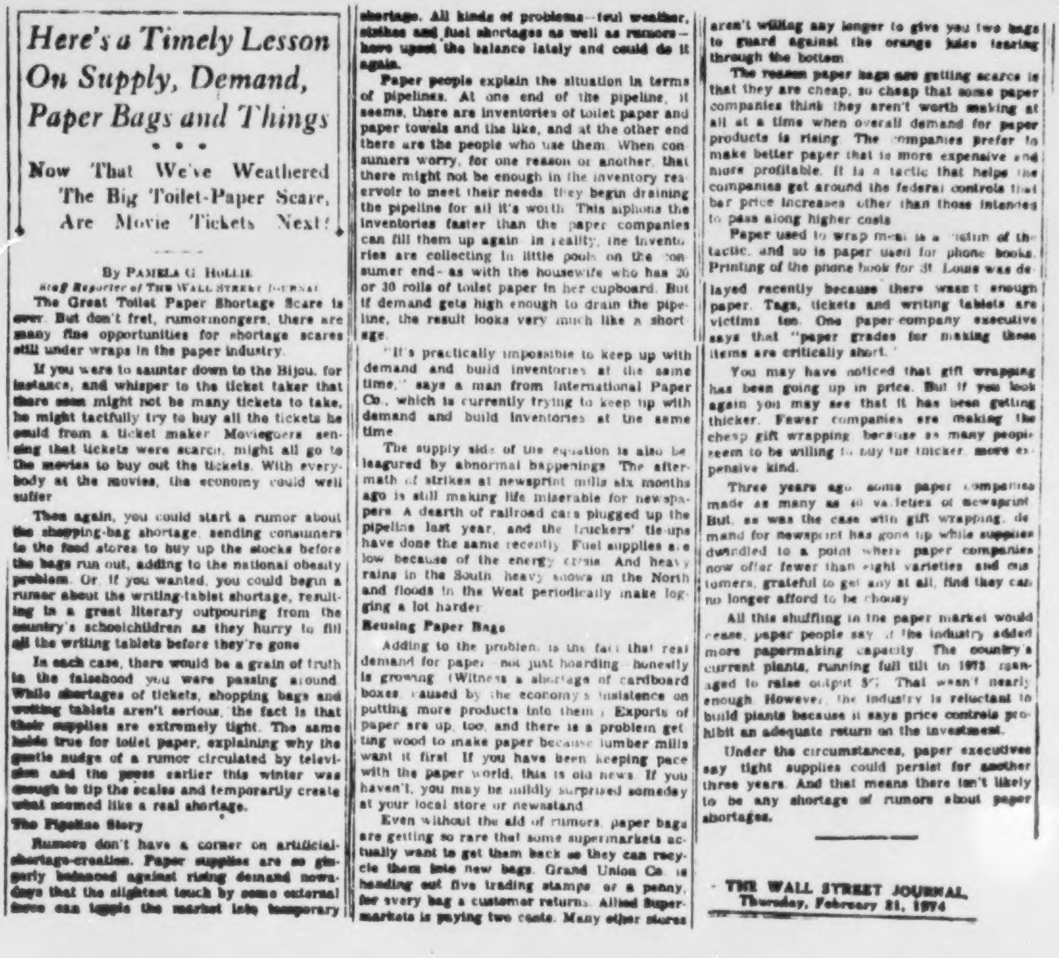
Revised Cluster of Questions for Harris Selection

Basic Question

Supporting Questions

Exercise 3

Your task is to prepare a basic question and a cluster of followup questions for the newspaper article shown below.



Here's a Timely Lesson On Supply, Demand, Paper Bags and Things

• • •

Now That We've Weathered The Big Toilet-Paper Scare, Are Movie Tickets Next?

By PAMELA G. HOLLIE
Staff Reporter of THE WALL STREET JOURNAL

The Great Toilet Paper Shortage Scare is over. But don't fret, rumormongers, there are many fine opportunities for shortage scares still under wraps in the paper industry.

If you were to saunter down to the Bijou, for instance, and whisper to the ticket taker that there soon might not be many tickets to take, he might tactfully try to buy all the tickets he could from a ticket maker. Moviegoers sensing that tickets were scarce, might all go to the movies to buy out the tickets. With everybody at the movies, the economy could well suffer.

Then again, you could start a rumor about the shopping-bag shortage, sending consumers to the food stores to buy up the stocks before the bags run out, adding to the national obesity problem. Or, if you wanted, you could begin a rumor about the writing-tablet shortage, resulting in a great literary outpouring from the country's schoolchildren as they hurry to fill all the writing tablets before they're gone.

In each case, there would be a grain of truth in the falsehood you were passing around. While shortages of tickets, shopping bags and writing tablets aren't serious, the fact is that their supplies are extremely tight. The same holds true for toilet paper, explaining why the gentle nudge of a rumor circulated by television and the press earlier this winter was enough to tip the scales and temporarily create what seemed like a real shortage.

The Pipeline Story

Rumors don't have a corner on artificial-shortage-creation. Paper supplies are so gingerly balanced against rising demand nowadays that the slightest touch by some external force can topple the market into temporary shortage. All kinds of problems—foul weather, strikes and fuel shortages as well as rumors—have upset the balance lately and could do it again.

Paper people explain the situation in terms of pipelines. At one end of the pipeline, it seems, there are inventories of toilet paper and paper towels and the like, and at the other end there are the people who use them. When consumers worry, for one reason or another, that there might not be enough in the inventory reservoir to meet their needs, they begin draining the pipeline for all it's worth. This siphons the inventories faster than the paper companies can fill them up again. In reality, the inventories are collecting in little pools on the consumer end—as with the housewife who has 20 or 30 rolls of toilet paper in her cupboard. But if demand gets high enough to drain the pipeline, the result looks very much like a shortage.

"It's practically impossible to keep up with demand and build inventories at the same time," says a man from International Paper Co., which is currently trying to keep up with demand and build inventories at the same time.

The supply side of the equation is also beleaguered by abnormal happenings. The aftermath of strikes at newsprint mills six months ago is still making life miserable for newspapers. A dearth of railroad cars plugged up the pipeline last year, and the truckers' tie-ups have done the same recently. Fuel supplies are low because of the energy crisis. And heavy rains in the South, heavy snows in the North and floods in the West periodically make logging a lot harder.

Reusing Paper Bags

Adding to the problem is the fact that real demand for paper—not just hoarding—honestly is growing. (Witness a shortage of cardboard boxes, caused by the economy's insistence on putting more products into them.) Exports of paper are up, too, and there is a problem getting wood to make paper because lumber mills want it first. If you have been keeping pace with the paper world, this is old news. If you haven't, you may be mildly surprised someday at your local store or newsstand.

Even without the aid of rumors, paper bags are getting so rare that some supermarkets actually want to get them back so they can recycle them into new bags. Grand Union Co. is handing out five trading stamps, or a penny, for every bag a customer returns. Allied Supermarkets is paying two cents. Many other stores aren't willing any longer to give you two bags to guard against the orange juice tearing through the bottom.

The reason paper bags are getting scarce is that they are cheap, so cheap that some paper companies think they aren't worth making at all at a time when overall demand for paper products is rising. The companies prefer to make better paper that is more expensive and more profitable. It is a tactic that helps the companies get around the federal controls that bar price increases other than those intended to pass along higher costs.

Paper used to wrap meat is a victim of the tactic, and so is paper used for phone books. Printing of the phone book for St. Louis was delayed recently because there wasn't enough paper. Tags, tickets and writing tablets are victims, too. One paper-company executive says that "paper grades for making these items are critically short."

You may have noticed that gift wrapping has been going up in price. But if you look again you may see that it has been getting thicker. Fewer companies are making the cheap gift wrapping, because so many people seem to be willing to buy the thicker, more expensive kind.

Three years ago some paper companies made as many as 10 varieties of newsprint. But, as was the case with gift wrapping, demand for newsprint has gone up while supplies dwindled to a point where paper companies now offer fewer than eight varieties and customers, grateful to get any at all, find they can no longer afford to be choosy.

All this shuffling in the paper market would cease, paper people say, if the industry added more papermaking capacity. The country's current plants, running full tilt in 1973, managed to raise output 5%. That wasn't nearly enough. However, the industry is reluctant to build plants because it says price controls prohibit an adequate return on the investment.

Under the circumstances, paper executives say tight supplies could persist for another three years. And that means there isn't likely to be any shortage of rumors about paper shortages.

- THE WALL STREET JOURNAL,
Thursday, February 21, 1974

1. Insert your cluster of questions for Exercise 3 in the space below.

Basic Question

Supporting Questions

2. Now compare your cluster of questions with this cluster.

Basic Question

What does it mean to say that paper bags are scarce because they are so cheap?

Supporting Questions

What does the author mean by scarce?

What does the author mean by cheap?

Why are paper bags cheap?

Why are they scarce?

What seems to be happening on the supply side of the market?

On the demand side of the market?

3. Write a paragraph comparing your cluster of questions with the above cluster.

Exercise 4

Reproduce ten copies of the news article in Exercise 3 and two copies of the Critique Form (Figure 4).

1. Arrange to play the role of discussion leader with several of your colleagues to get the feel of the approach.

2. Before the discussion, ask one person to review the Critique Form, fill it out afterwards, and then sit down with you to compare his and your critique forms.

3. Afterwards, fill out a copy of the Critique Form and meet with your fellow reviewer to compare the critiques.

CHAPTER 7

ESSAY QUESTIONS AND TESTS

Arthur L. Welsh

NEEDS

> "Create life. Estimate the differences in subsequent human culture if this form of life had been developed 500 million years ago, with special attention to the probable effect on the English parliamentary system. Prove your thesis."

Most essay questions used in economic exams are neither as imaginative nor humorous as this one, but it is a safe bet that a lot of them are equally absurd. The thrust of this paper is not aginst imaginative questions which are highly desirable, or the use of humor, which can be useful on occasion. Rather the thrust is directed toward essay questions which are appropriate in content and sound in structure.

The need for good essay questions follows naturally from their widespread use in economics. Essay questions are far and away the single most popular type of exam used in economics and yet, as we shall see, they are subject to several weaknesses which must be overcome if they are to be used effectively.

GOALS

The goal of this chapter is to illustrate the strengths and weaknesses of essay questions and tests, and to encourage you to think carefully about the substance, form and appropriateness of essay items.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter, you will be able to:
   a) state the primary reason for using essay questions.
   b) state four problems that frequently occur in using essay questions.
   c) state five steps that can be taken to improve the construction of essay questions and tests.
   d) state four procedures that can be used to improve the grading of answers to essay questions.

(objectives continued)

2. After reading this chapter, and given a set of essay questions, you will be able to suggest ways in which each question might be improved.
3. After reading this chapter, and given a previously prepared essay question, you will be able to prepare a model answer for grading purposes, and assign credit points to each part of the answer.
4. After reading this chapter, completing the exercises, and participating in a class discussion, you will be able to construct an essay examination with at least three questions designed to test a given unit of economic content and design an answer key that two qualified reviewers will indicate meets all of the following criteria:
   a) Do the questions have educational value.
   b) Are the questions challenging and motivating.
   c) Do the questions explicitly indicate what is intended.
   d) Do the questions adequately sample the content of the unit that was covered.
   e) Can the questions be answered in the alloted time.
   f) Is the answer key clear and unequivocal.

AFFECTIVE OBJECTIVES

1. After reading this chapter and completing the exercises, it is intended that you will:
   a) value the importance of well constructed essay questions and scoring keys.
   b) incorporate well constructed essay questions and scoring keys into your regular examination practice where they are appropriate.
   c) follow the procedure recommended for grading essay questions and examinations.

OUTLINE OF MAIN POINTS

- Why Essay Tests?
- Weaknesses of the Essay Test
    - failure to exploit potential advantage
    - time consuming to score
    - vulnerability to human scoring error
    - content unreliability
- Steps to Improve Essay Questions and Tests
    - devoting adequate time to writing items
    - providing adequate instructions
    - many short answer questions vs a few long answer questions
    - allowing sufficient time for student response
    - avoiding optional essay questions
- Evaluating Answers to Essay Questions
    - preparing an answer and a key
    - altering the scoring key
    - serial grading
    - the students' name as a source of unconscious bias
- Do's and Don'ts
- Exercises

ESSAY QUESTIONS AND TESTS

WHY ESSAY TESTS?

When testing we often strive for more than assessing memory, or well rehearsed associations. We generally prefer to test our students' abilities to interpret and evaluate situations and apply economic concepts and principles. Along the way, we may like to encourage training in expression, organization of content, and the techniques of outlining and summarization. Some instructors would go so far as to say that they have as their goal the encouragement of creativity and originality. Although original ideas are seldom as easy to recognize as one might think, encouraging students to use their own words and expressions at least raises the belief that the essay may be the best possibility of evoking originality and, for this purpose, it probably is. The main reason for using essay questions, therefore, is to test students'ability to organize and express their understanding at higher cognitive levels than those customarily tested by other types of examination questions.

WEAKNESSES OF THE ESSAY TEST

It is one thing to use essay tests in the hope they will elicit higher order mental processes--including originality--and quite another to fulfill this hope. Essay questions do not automatically guarantee hoped for results; indeed, the most common weakness of essays is that *they do not exploit their potential advantage*. They are often trite and ambiguous in form, criticisms which proponents of essays usually reserve for questions of other types.

A second weakness, and one that is hard to overcome is that essay questions are *time consuming to score*. Unlike multiple choice questions, for example, they cannot be assigned to a clerk or a computer, to score. Essay questions need the competence of an experienced instructor, and with large classes the opportunity costs to an instructor can be considerable.

Third, the essay test is *vulnerable to human scoring error*. Scores on the same question can differ enormously, even though on close examination, such a point spread among student responses is not warranted. This often happens because the instructor does not have a well defined scoring key in mind. Also we are sometimes influenced by the legibility of handwriting, cleverness or awkwardness of phrasing, grammar, punctuation, and other factors which may be extraneous to the instructor's purpose.

A fourth weakness of essay tests concerns content unreliability. As economists are well aware, a small sample from the universe of situations is likely to be unrepresentative. Thus, a test consisting of only a very few essay questions may only by chance hit upon the relative strengths or weaknesses of students. In such a situation we cannot obtain dependable inferences concerning students' true abilities and achievements.

The rules for strengthening the essay test emerge naturally from its weaknesses. Let's now turn to ways of making essay tests stronger.

STEPS TO IMPROVE ESSAY QUESTIONS AND TESTS

Devote More Time to Constructing Questions. If you like essay questions because you can compose them shortly before the exam, then you are probably writing bad questions. Sufficient time and care should be given to this task if the questions are to elicit the intended behavior.

Essay questions which begin with words like "who," "what," and "where" usually do not get us far beyond mere memorization.

Viz:

> Who is responsible for regulating the nation's money supply?
> What are the conditions for perfect competition?
> Where is most of the world's coffee grown?

One can think of scores of questions like these in a short period of time, but they are of limited educational value. What we should be seeking instead are essay questions which call for comparisons, causes and effects, statements of relationships, analyses, and the like. Moreover, we should try to motivate our students by posing challenging and interesting introduction to our questions. For example:

> Lines of automobiles at service stations are growing longer while drivers' patience is growing shorter. Some economists advocate immediate gas rationing to distribute short supplies while others feel that the price system is the best means for the task.
>
> Analyze the arguments for each position, paying particular attention to efficiency and equity considerations.

Or:

> You were required to read the following books:
>
> An Inquiry Into the Nature and The Causes of The Wealth of Nations-Smith

The Theory of the Leisure Class - Veblen
Value and Capital - Hicks
The New Industrial State - Galbraith

Which of these books give the most complete account of the workings of a market economy? Briefly summarize what you found in that book. How do the findings of the other books differ from those in the book you selected?

And:

The following two headlines might have appeared in newspapers somewhere:

J. M. Keynes, Socialist Economist, dies at the age of 63.
J. M. Keynes, Savior of Capitalism, dies at the age of 63.

Select either headline and defend it by giving your understanding of Keynes' main economic arguments.

Keep in mind that the foregoing questions are illustrative only; they are meant to indicate that essay questions shouldn't be, or need be, trite. But searching essay questions require time to think about and compose.

Provide adequate instructions for the students. Even though some students may not know the answer to the question, every student should know what question is being posed. Sometimes you need instructions calling the students' attention to what you expect in the way of content coverage and detail. Failure to do this can result in some students attacking the problem the way you intended, while others, for legitimate reasons, do not. The upshot of this situation is that there is no fair way to compare students' answers.

Consider the following questions:

1) "You are the President. What economic policies would you pursue?"

2) "You are advising the President of the U.S. What economic policies would you recommend that he currently pursue with respect to employment, the price level, and the rate of real economic growth. Restrict your analysis to the instruments of fiscal and monetary policy and how conscious changes in these policy tools would affect employment, prices and growth."

Neither of these questions is technically perfect, but clearly the second is more explicit than the first and, hence, less susceptible to misinterpretation by students.

Many Short Answer Essay Questions May Be Preferable to A Few Long Answer Questions. An examination covering the first third or half semester is typically no more than fifty minutes in length. In such a limited period of time only a fraction of the content you might wish to cover can be included. It becomes important, then, to carefully specify the content you are testing for and design your exam accordingly.

Three or four long answer essay questions are probably the most that can be used in a typical exam situation. Unless these questions are very well thought out and tightly phrased, the risk of content unreliability becomes very real. By content unreliability, we mean simply the test unreliability arising from a failure to adequately sample knowledge of content considered to be most important. While content unreliability can result in any type of examination of any length, it is more likely to occur in tests with few questions.

To get around the problem of content unreliability - and thus minimize the risk of drawing unwarranted inferences about student ability - it is sometimes wise to use ten to fifteen short answer essay questions in place of three or four extended answer questions. By spacing the questions on the examination form you can indicate the desired length of each answer. One type of short answer essay question combines the essay with the multiple choice exam. You can do this by asking students to write several sentences explaining the process by which they selected the correct option and explaining why each of the other options is wrong. This is also a good method of determining whether the multiple choice question has weaknesses you might have overlooked.

Remember: The short answer essay can improve content reliability but it does not guarantee it. Many short answer questions, for example, which cover a narrow range of subject matter may not adequately sample the universe of understanding you wish to measure. Thus, it is vitally important that serious thought be given to content planning before you actually write your exam questions.

Make Sure Sufficient Time is Allowed for Student Response. If long written responses are intended, you should have few questions and adequate testing time. Since extending the latter is usually not possible, the number of items must be reduced. But remember, this may cause you a content sampling problem. If broad content sampling is required, your best bet is to use a combination of short answer essays with multiple choice exams. If an in-depth treatment of a particular topic is required however, then the extended essay is most appropriate.

The Use of Optional Essay Questions. Permitting students to answer any three of five questions on an essay exam, or two of three, or whatever combination, is common practice. Perhaps the reason for this is that the instructor is vaguely uncomfortable with the content sampling and wishes to broaden it with optional questions. But, whatever the reason it is a practice to avoid, because an examination in which individual students can select different questions to answer is no common examination at all. And, since the questions presumably deal with different content matter, any attempt to apply the same grading scale to dissimilar tests is unfair to the students and therefore, unwise.

EVALUATING ANSWERS TO ESSAY QUESTIONS

Prepare An Answer And A Key. The importance of writing out the answer and making a key for marking exams should be obvious; the key should indicate the elements desired in an acceptable answer and the credit points assigned to each element, thus reducing the chances of unreliability in scoring.

For example, let's assume we have posed the following statement and asked students whether they agree or disagree with it, to identify the main issue(s) involved, and to show by way of examples their supporting argument.

> Question: "Clean air, clean water, green grass and redwoods are all good things, but so are electricity, newspapers, houses and bread, and I don't see any reason to believe that the market wouldn't give us the right combination of them all."
>
> Model Answer: Disagree. The problem of third party costs and third party benefits (externalities) makes it unlikely that a free market based only on private costs and benefits would provide optimum combinations of all goods. Goods with third party costs would tend to be over-produced, and goods with third party benefits would tend to be under-produced.
>
> For example, if burning coal to produce electricity fouls up the air, an unrestricted free market would not count the cost of air pollution and this cost would not be covered by the price paid by the consumers of electricity. Part of the cost of electricity is thus shoved off on "third parties,"

> and this would tend to cause over consumption and over production by the parties directly involved.
>
> Likewise goods that have third party benefits such as neat trim lawns are likely to be under-produced in a free market. Since the person who improves the appearance of his lawn can't effectively charge all of the passersby who derive aesthetic enjoyment or charge his neighbors who benefit from the general neighborhood improvement, he is likely to devote less time to improving his lawn than would be the case if he could charge for the third party benefits of his private lawn improvements.

If we're satisfied with our written answer we can now assign credit points to the elements in the answer we feel are most important. For this question the author assigned fifteen points weighted as follows: 2 points for disagree: 3 points each for noting third party costs and third party benefits; one point for mentioning externalities; and 3 points each for examples showing third party costs and third party benefits and their consequences.

Why this particular assignment of points? It was largely *subjective*; what the author thought was important. If you were to prepare an answer for this question and assign credit points, in all likelihood your results would differ somewhat from the author's. Because of this, it becomes especially important that on common departmental examinations all instructors agree on a suitable answer and a scoring key.

A well thought out scoring key not only facilitates more objective scoring, but can also help instructors achieve a greater degree of discrimination among student responses. For example, some instructors are loathe to give a student zero credit on an essay question unless the question is left blank. In the absence of substance some instructors can find redeeming merit in anything the student puts down on paper and give him two or three credit points. On the other end of the grading scale, these same instructors may embrace the notion that students are inherently incapable of a "perfect" answer and assign as a best score one that is two or three points below the maximum alloted.

The difficulty with adding points at the lower end of the scale and shading them at the upper is that one automatically restricts the range of scores. A ten point question with a 0 - 10 theoretical range becomes for all practical purposes a 2 - 8 range or even a 3 - 7 range. By restricting the range, scores tend to cluster and the question loses much of its discriminating power; that is, it does not reveal significantly different performance levels among good and poor students.

Of course, the range of scores may be narrow because the question is too difficult or too easy. This will happen sometimes but can be overcome with experience. However, restricting the range of scores because one does not have an adequate scoring key is avoidable.

Don't Be Afraid To Alter The Scoring Key. Before grading examination questions it is a good practice to glance through some of the student responses. Sometimes students come up with valid points you may not have thought about, or you might have worded your question in such a way as to lead students toward an unintended - but valid - answer.

Suppose, for example, you asked students to "describe the process of inflation and identify the groups in society which suffer from price inflation." You then write out your answer to the question and assign credit points.

After glancing through some of the student responses you notice that some students are answering on the basis that the price inflation was anticipated by all groups in society, while other students assumed that the price inflation was unanticipated. You had "unanticipated" in mind. Is your answer and key valid? Probably not, since your question is ambiguous on this point.

The ideal solution is to construct questions which leave no room for ambiguity. However, regardless of how hard one might try, mistakes do happen. In this situation recognize the error as yours and not the student's, and prepare an alternate key.

Grade Each Question For All Students Before Moving To The Next Question. Grading each student's entire exam before moving to the next can result in unconscious scoring bias. If, for example, the first few responses on a student's exam are excellent, there is sometimes a tendency to award more credit on the next question than is perhaps warranted by the answer. The reverse situation holds also. Thus, grade each question seriatim.

Don't Look At The Student's Name Before Grading The Exam. Knowing the identity of the student whose exam you are grading can be a source of unconscious scoring bias. Instructors quickly gain impressions of who their better and poorer students are. In grading exams there sometimes is a tendency to legitimize prior impressions by reading more into the answers of "better" students than is actually there. The opposite holds true for "poorer" students. One can minimize the potential for bias by not looking at the name on the examination until all questions are marked. (Incidentally, the editor of the American Economic Review is sending articles to reviewers without the name of authors to determine if this will eliminate the selection bias, which some critics allege the practice of furnishing the reviewers with authors' names encourages.)

If you wish to read further in an area where substantive work is skimpy, you will find the following reference an easy to read book with point-by-point hints for effective essay writing.

Wood, Dorothy Atkins, Test Construction: Development and Interpretation of Achievement Tests, Charles E. Merrill Books, Inc., Columbus, Ohio, 1961, pp. 93-107.

DO'S AND DON'TS

Do - plan to write your test items well ahead of the time you administer the test.
Do - be precise and unambiguous in framing your question.
Do - make sure that content sampling is adequate.
Do - prepare an ideal answer and a key for each question.

Don't - be afraid to alter your scoring key if it appears inadequate.
Don't - grade each student's entire exam before moving on to the next.
Don't - look at the student's name before you grade his exam.
Don't - make your test impossible to complete in the alloted testing time.

ESSAY QUESTIONS AND TESTS
Exercise 1

Review Notes

1. In your own words, briefly state the main reason for using essay questions.

____

____

____

2. Four problems that frequently occur when essay questions are used are:

(1)______________________________

(2)______________________________

(3)______________________________

(4)______________________________

3. Five steps that can be taken to improve essay exams are:

(1)______________________________

(2)______________________________

(3)______________________________

(4)______________________________

(5)______________________________

4. Four procedures to keep in mind in grading essay questions are:

(1)______________________________

(2)______________________________

(3)______________________________

(4)______________________________

ESSAY QUESTIONS AND TESTS
Exercise 2

1. Each of the following questions has one or more "bugs" in it. Use the space below each question to rewrite the question in a more effective manner.

   A. "Some think we should have a tax cut now; others bitterly oppose such a move. Show what would happen if taxes were or were not cut."

   The main problem(s) with this question is (are)____________________

   ____

   ____

   A more effective wording would be ______________________________

   ____

   ____

   ____

   ____

   B. "Compare and contrast the views of the AFL - CIO and the National Association of Manufacturers on economic issues."

   The main problem(s) with this question is (are)____________________

   ____

   ____

   A more effective wording would be ______________________________

   ____

   ____

   ____

   ____

C. Several commentators have noted that the U.S. labor movement today is in much the same situation that the U.S. labor movement was in the 1920's. Who are these commentators?

The main problem(s) with this question is (are)________________

____

____

A more effective wording would be______________________

____

____

____

____

D. Forgetting trivial matters what would happen if we followed Herbert Stein's injunction and returned to "that old time religion"?

The main problem(s) with this question is (are) ________________

____

____

A more effective wording would be______________________

____

____

____

____

2. Prepare a model answer to the following essay question and work out a scoring key that totals 20 points.

Ask a colleague to prepare a model answer and scoring key to this question, and compare the results. Discuss any differences that you find.

It has been stated that holding price above marginal cost "is the basic criticism of monopoly". Explain carefully why you agree or disagree with this statement.

3. Using a 40 point scale, grade each of the three student answers to the following question. Ask four colleagues or fellow students, to grade the answers, and compare results. Discuss any differences that you find.

Final Exam Question (20 minutes, 40 points)

What is the best single measure of the total economic performance of the U.S. economy? What are some important limitations of this measure? What other information do you think one should look at in attempting to evaluate the total performance of our economy? Why?

Student Answer #1

The best single measure of the U.S.'s total economic performance is that of gross national product. This GNP is measured by the sum of consumption (money spent by the public on goods + services), investment (that money which is saved instead of spent), and the government's expenditures on goods and services. Together ~~those ones~~ this includes all of the money circulating in our economy.

The GNP is also the measure of Aggregate Demand.

In evaluating the total performance of our economy, I think fiscal and monetary policies should also be taken into consideration. How the government uses these policies in order to achieve the goals they desire is very important in understanding how the economy is run. Although fiscal policy may be a little slow in getting decided

(over)

upon and monetary policy may have a lag once introduced to the public, over time, ~~then~~ the outcome of each has a great effect on the economy.

The people's willingness to go along with all the decisions made by the relatively few men in authority is a big part in how our economy is run also.

Student Answer #2

THE BEST SINGLE MEASURE OF THE TOTAL ECONOMIC PERFORMANCE OF THE U.S. IS "REAL" GNP PER CAPITA. "REAL" GNP IS THE DEFLATED GNP PRICE FIGURE ACCORDING TO A PARTICULAR (OR AGREED UPON) PRICE INDEX. ALTHOUGH IT IS A GOOD INDICATOR OF ECONOMIC PERFORMANCE IT DOES HAVE SOME LIMITATIONS BESIDES THE NON-TRADING ILLEGAL ACTIVITIES IT DOSEN'T ACCOUNT FOR. FIRST OF ALL THIS FIGURE DOSEN'T MEASURE THE VALUE OF THE PEOPLES LEISURE TIME NOT DOES IT TAKE INTO ACCOUNT SUCH "DISAMENITIES" AS POLLUTION OR OVERCROWDING. IT ALSO FIGURES IN "REGRETABLES" (E.G MONEY SPENT ON NATIONAL DEFENSE OR MONEY SPENT TO TRANSPORT PEOPLE) ALSO THIS MEASURE DOES NOT GIVE ANY IDEA ON THE COMPOSITION OF ITEMS PRODUCED OR THE DISTRIBUTION OF THOSE ITEMS. OTHER INFORMATION WHICH ONE SHOULD LOOK AT IN ATTEMPTING TO EVALUATE THE TOTAL PERFORMANCE OF OUR ECONOMY IS THE UNEMPLOYMENT RATE OR CONSUMERS PRICE INDEX OR OUR BALANCE OF

PAYMENTS WITH FOREIGN COUNTRIES. THIS OTHER INFORMATION GIVES ONE A LOOK AT THE U.S. ECONOMY AS A WHOLE & GIVES MORE COMPLETE INFORMATION AS TO WHAT KINDS OF POLICIES TO PUT INTO EFFECT.

Student Answer #3

I feel that the single measure of total Economic Performance of the U.S. economy is GNP.

GNP is measured in the Gross not net therefore when it is measured there is a bigger chance of thing being over estimated such as farm products raised by those who are totally self sufficient. People who are included in the use of electricity consumption and natural products as such and use other means of being sufficient.

GNP is Quantity not quality of what is being used in the C+I+G

GNP is influenced by other forces rather than the basic model of Government Spending & Taxing. Aggregate demand is included because it is equal to GNP. When it comes to evaluating the total performance of our economy I feel inflation is also an important measure. $GNP > Y_{FE}$ then inflation occurs. It is important to keep a control on where there is

OVER

more money being spent than what is being produced to meet the demands of the people in the economy.

Exports and Imports are also a big factor because if a country is at full employment and can ~~important~~ import goods to off set the demand for their goods it will help curve the problem of inflation.

Money is money in our economy and therefore it is also important for a person to realize that it is only backed by the confidence we put in it. The economy can be more stable i.e. if the $ is honored rather than if a person would not except it.

GNP is what we base most everything totally therefore it is important for a person to understand and accept it.

ESSAY QUESTIONS AND TESTS

Exercise 3

Write an essay question on an economics subject of your choice that can be answered in no more than fifteen minutes.

Prepare a model answer to this question, and a scoring key that totals 20 points.

In preparing your question, model answer, and scoring key, pay particular attention to the following questions which will be used by two qualified reviewers to determine whether or not you have successfully completed this exercise:

a) does the question have educational value.
b) is the question challenging and motivating.
c) does the question explicitly indicate what is intended.
d) does the question adequately sample the content that was covered.
e) can the question be answered in the alloted time.
f) is the answer key clear and unequivocal.

CHAPTER 8

MULTIPLE CHOICE OBJECTIVE TESTS

Arthur L. Welsh

NEEDS

Putting together and administering examinations is an important part of a teacher's responsibilities. It is primarily through the use of examinations that we get feedback on how well or how poorly our students are achieving. If examinations are to provide accurate information for the instructor and be fair to students, they should be prepared with great care. Unfortunately, such care is lacking in far too many instances in economics.

There are many forms that examinations can take - essay, multiple choice, fill-in-the-blanks, true-false, short answer, matching pairs, etc. The purpose of this chapter is to look at only one of the commonly used types in economics: namely, multiple choice objective tests. The reasons for focusing on multiple choice items are not simply because they are commonly used in economics. Rather, it is because they have features besides familiarity that contribute to their use in economics.

GOALS

The goals of this chapter are: (1) indicate the advantages of multiple choice questions; (2) to impress upon you the importance of planning your exams, and to present a simple framework which will aid your planning; (3) to offer a few key rules governing the construction of good objective test items; and (4) to offer the suggestion that objective test items can be constructed in such a way as to test for higher thought processes than simple recognition of facts and concepts.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter you will be able to:
   a) state three main advantages of multiple choice questions.
   b) construct a specification table for your own multiple choice tests.
   c) identify three rules for constructing good stems for multiple choice questions.
   d) identify seven rules for constructing good distractors for multiple choice questions.
   e) state some of the sources from which multiple choice questions can be obtained.

(objectives continued)

2. After reading this chapter, and given a set of multiple choice questions and a set of cognitive categories, you will be able to classify each question according to its appropriate cognitive level.
3. After reading this chapter, and given a set of multiple choice question exercises, you will be able to:
   a) identify multiple choice questions which have flaws in either the stem or distractors.
   b) write multiple choice questions with good stems and distractors.

AFFECTIVE OBJECTIVES

1. After reading this chapter and completing the exercises, it is intended that you will:
   a) value the importance of well constructed multiple choice questions.
   b) incorporate well constructed multiple choice questions into your regular examinations where appropriate.

OUTLINE OF MAIN POINTS

- Advantages of Multiple Choice Questions
    - Scorer Reliability
    - Economy in Scoring
    - Speed in Returning Scores
    - Subject Matter Sampling
- Planning Multiple Choice Exams Constructing a Test Matrix
- Rules for Writing Stems
    - Pose a Clearly Stated Central Thought
    - Use Words as Economically as possible
    - Present Stems in a Positive Form
- Rules for Writing Options
    - One Unequivocal Right Answer
    - All Options must be Plausible
    - Avoid "Give Away" Wording
        - Always and Never
        - Grammatical Form
    - Avoid "Trick" Questions
    - Pairing Opposite Alternatives
    - None of the Above, All of the Above
    - Position of the Correct Answer
- Multiple Choice Questions and Higher Thought Processes
    - Identifying Cognitive Levels
    - Examples of Questions at Different Cognitive Levels
- Obtaining Good Objective Items
- References
- Do's and Don'ts
- Exercises

MULTIPLE CHOICE OBJECTIVE TESTS

There are four main advantages of using multiple choice questions.

ADVANTAGES OF MULTIPLE CHOICE QUESTIONS

Multiple choice tests get high marks for scorer reliability. Objective tests can be constructed to avoid the unreliability so common in essay tests which results from scorer inconsistencies. Indeed, it is the objectivity of scoring that has led to the term "objective test". consistency in scoring essay exams occurs because scorers, being human, do vary their scoring from one occasion to another.

Multiple choice tests also have the obvious virtue of economy in scoring. Moreover, the turn around time for objective tests is much shorter than it normally is for essay tests. Speed in returning test results has importent motivational aspects for students because they can see very quickly how well they are performing.

Finally, multiple choice objective tests may allow one to better sample the universe of the subject matter being taught. When you think of it for a moment, this is not too surprising. The typical testing time is about one class period or about fifty minutes. Three or four essay questions are not as efficient in gaining subject matter coverage as thirty or forty multiple choice questions each with four or five options. The chances of really getting at whether the student "knows his stuff" would appear to be better with objective tests, since two hundred or more carefully worded options reduce the probability that the student will"luck out". On the other hand, the probability of "psyching out" the professor on three or four essay questions is higher. As indicated in the preceeding chapter, this is not to imply that properly written essay questions are of no value. Rather, it is to demonstrate that objective type examinations have virtues that merit a closer look.

PLANNING MULTIPLE CHOICE EXAMS

All of us, of course, do some planning before we put our exams together. But too often, our thinking is somewhat imprecise if not downright fuzzy. Generally, we have a fairly good idea of the broad content areas we are testing for. However, we tend to be less aware of the number of questions assigned to each area, and the level of student knowledge we are attempting to tap.

In improving our test planning, therefore, a useful first step is to specify in some detail the content we wish to cover and then prepare the examination to meet these specifications, allowing sufficient lead time to permit careful editing and last minute revisions. A simple matrix, sometimes called a table of specifications, is often helpful. Table 1 shows a condensed version of the matrix used for the macro economic section of the Test of Understanding in College Economics (TUCE). The content areas to be tested are listed in the left column; i.e., scarcity, macroeconomic accounting, etc.[1] The horizontal categories describe the intellectual or cognitive level for each item -- recognition and understanding, simple application, or complex application. We will have more to say about these categories used in constructing the TUCE later.

TABLE 1

TEST OF UNDERSTANDING IN COLLEGE ECONOMICS, PART I

Distribution of Questions by Objectives and Content Categories*

	FORM A				
	Objectives				
Content Categories	Recognition and Understanding	Simple Application	Complex Application	Number of Questions	Per cent Testing Each Content Category
A. Scarcity; functioning of economic systems; bare elements of supply and demand.	1, 8	2, 24, 32	12	6	18
B. Macroeconomic accounting.	3, 5	9		3	9
C. Determination of GNP (income-expenditure theory.)	10, 26	19, 20		4	12
D. Money, banking, and monetary policy.	6, 23	16, 21	14, 25, 30	7	21
E. Government fiscal policies.	7, 18	11, 15	33	5	15
F. Determinants of economic growth.	4	27		2	6
G. Policies for stabilization and growth.			13, 17, 22, 28, 29, 31	6	18
Number of Questions	11	11	11	33	
Per cent Testing Each Objective	33	33	33		

*The serial numbers of questions on each form are given in the cells.

---

[1] These categories were reduced from twenty-one pages of detailed specifications. The greater the detail, the more precise your test will be.

There are several things that a simple matrix such as the one shown in Table 1 can do for us: (1) By stating the content categories we are forced to specify the content we wish to examine. (2) The cognitive categories show us at a glance the type of student behavior to be tested. The number of questions in each cell of the matrix show us if our test relies heavily on memorization or if we're tapping the students' higher thought processes. (3) Finally, we can see if we've covered each of the areas we wish and with the appropriate emphasis. Note that on the particular form of the TUCE shown in Table 1, the test authors were more concerned that students be able to handle relatively complex situations in category G as opposed, say, to the mere memorization of facts. When planning your own tests, you will be able to make similar determinations based on your own judgments.

Once you have decided the content areas over which you plan to test, have weighted the various areas to your satisfaction, and have specified the kinds of student behavior you wish to examine (factual memorization, synthesis, evaluation, etc.) you are then ready to write and/or select good test items.

But what are "good" test items? How does one know when he has written a "good" item or seen one in a student workbook or manual?

Some of the more important rules for recognizing and constructing good multiple choice items are presented below. Since multiple choice questions have two parts - the stem or the body of the item, and the options or distractors - we'll deal with each separately.

RULES FOR WRITING STEMS

The Stem Should Deal With A Clearly Stated Central Thought. A multiple choice item presents a problem, stated either as a question or as an incomplete statement. The student is required to choose the one best answer to the question or the one best completion to the incomplete statement.

a) An example of a problem stated as a question would be:

  1) What are the basic economic questions which all societies face?

b) The problem could also be stated as an incomplete sentence:

  1) The basic economic questions which all societies face are ...

A common pitfall of stem writing is that the author cuts off the statement of the problem too soon with the result that the student has to read the answers before he can determine what the problem is.

An example of a stem with no central thought would be:

  1) Economics is ...

Note that the student could supply a long list of plausible alternatives that may be reasonable to him, but not what you had in mind — such as:

a) a difficult subject
b) concerned with how society allocates its scarce resources
c) necessary to function as a responsible citizen
d) an art, not a science

*RULE: State your question precisely. The stem as a whole should deal with a central thought.

The Stem Should Be Expressed As Briefly As Possible. This is one of the most important features of good item writing and perhaps the most commonly violated. Undue wordiness usually increases the difficulty of the problem without adding anything to the concept being tested. Consider the following:

1) Monetary and fiscal policies are commonly used in the U.S. for stabilization purposes. Leaving aside fiscal policies for the moment, which of the following monetary policies would be most effective in combating inflation?

The stem contains a lot of unnecessary verbiage. The question is only concerned with monetary policy for combating inflation. Thus, a more economical wording would be:

2) Which of the following monetary policies would be the most effective in combating inflation?

As your questions move into the higher cognitive areas requiring interpretation and application, longer stems are often required to provide necessary information. But we should always try to minimize reading time and unnecessary complexity.

***RULE**: Use words as economically as possible.

Present Stems in a Positive Form. Negatively worded stems using such terms as "not a characteristic", "least frequently occur" and "rarely affect" are commonly used by beginning item writers. The reason is that it's an easy stem to write. The writer finds a list of positive characteristics describing some situation and then writes a negative stem. The form of the question is frequently worded as follows:

1) Which of the following is not a characteristic of a purely competitive industry?

The double negative sometimes slips in too:

2) Which of the following is not the least important characteristic of a market economy?

From all standpoints, negatively worded questions are confusing and add nothing to the concept being tested. If you must use negative words such as NOT, capitalize them and underline them to call them to the attention of the students.

***RULE**: Avoid negative wording when possible. CAPITALIZE AND UNDERLINE negative words when you must use them.

RULES FOR WRITING OPTIONS

Multiple choice questions generally have four or five options. The larger the number of options the smaller the chance of a student guessing the correct answer. From a practical standpoint, however, it may be a good idea to use only four options, since, as we shall see, it is often difficult to write five.

One Unequivocal Right Answer. The correct option must be unequivocally correct, and all others must be unequivocally wrong. Occasionally an item ask for the "best" answer among the options'; in this case, the "correct" answer must be unequivocally superior.

All Options Must Be Plausible. Although each question should have one unequivocally right answer, each of the intended wrong answers should have an element of plausibility. If one or more of the options do not appear reasonable to the student, then they should be changed since they serve no useful testing function.

For example:

1) The demand for a factor of production depends largely on
   a) the supply of the factor
   b) the supply of other factors of production
   c) the demand for the product or products which it helps produce
   d) the considered judgment of the Federal Reserve System

Most students would recognize that "d" is a weak option and disregard it. A better option would be:

   d) the demand for other factors of production.

*RULE: One option must be unequivocally correct. The others must be plausible enough to be acceptable to someone.

Avoid "give away" Wording. When in doubt about options, the words "always" or "never" are popular. However, these words often provide the student clues, since few things in economics "always" result or "never" result.

Thus:

1) In regulating the money supply the Federal Reserve System
   a) never relies on open market operations
   b) always relies on open market operations
   c) relies on open market operations, the discount rate and reserve requirements
   d) relies on the discount rate and reserve requirements

For most students, the real choice is between options "c" and "d". In effect the problem becomes a true/false question - two options instead of four. It doesn't take a student long to figure out that the first two options are highly unlikely in situations such as this.

*RULE: Words like "always" and "never" usually appear in false statements. Avoid them in stems and options.

Sometimes options fail to complete the stem of an incomplete sentence in good grammatical form. Students know that the chance of a grammatical error in the correct option is much smaller than in the incorrect one.

Hence:

The functions of the Fed are to provide the nation with an elastic money supply and to

a) help stabilize the economy
b) correction of national income statistics
c) correction of the tax laws
d) help levy property taxes

Options "b" and "c" do not complete the stem grammatically and students will likely avoid these options.

*RULE: Use parallel and correct grammar in all options.

Avoid "Trick" Questions. Questions in which some subtle detail makes an otherwise correct option erroneous should be avoided since such questions tend to emphasize irrelevant skills. For example:

After its formation in 1940, the Federal Trade Commission turned its attention to:

a) regulating interstate commerce
b) matters of antitrust
c) setting utility rates
d) none of the above

A student with an idea of the functions of the FTC, would quickly seize upon option "b". The "trick" is that the FTC was not formed in 1940, a point students are likely to gloss over. If you are interested in the date the FTC was formed, ask it directly.

*RULE: Avoid "tricks". It is better to transform items into simple questions of fact.

may not know the correct answer but his chances of guessing correctly are one in three rather than one in four.

The "all of the above" type has its problems too. For example:

2) Which of the following is (are) true of the U.S. economy?
    - a) it has experienced periodic recessions
    - b) its citizens enjoy a relatively high per capita income
    - c) real GNP in 1950 was 355.3 billion dollars
    - d) the industrial production index in 1947 was 65.7
    - e) all of the above

In an item of this type, with only one correct answer, the student need only know that any two options are true. He can disregard the others and mark option "e". An additional difficulty is that some students realizing that option "a" is true, might select it without reading the remaining options.

*RULE: The use of "all of the above" is rarely justified. "None of the above" should be incorporated into all items, if it is used at all, and should be the correct option in an appropriate number of items.

Position of the Correct Answer. The position of the correct answer should be assigned at random in order to avoid any unconscious biases you might have. There are some exceptions, however, as in the case where a particular date is required or perhaps where a figure on per capita income or GNP is called for. In these cases arranging the data in ascending or descending order is preferable to jumbling the order. For example,

GNP in 1968 was approximately
- a) $750 billion
- b) $793 billion
- c) $800 billion
- d) $866 billion

If the options have different numbers of words, it is sometimes better to arrange them uniformly in order of ascending or descending length rather than have long options "stick out" in the middle of a sequence.

*RULE: Position the correct answer randomly, unless there is a compelling reason for not doing so.

Pairing Opposite Alternatives. After writing the correct answer to a problem, item writers sometimes experience difficulty developing plausible incorrect answers. They then take the easy way out by writing the opposite form of the right answer, followed by two more unrelated options. The problem with this procedure is that students will zero in on the opposites and ignore the others. The question now becomes a true/false item.

Thus:

1) When dealing with the economics of the business firm, the short run is defined as a period long enough to
   a) vary output but not plant capacity
   b) vary plant capacity but not output
   c) introduce technical innovations
   d) gather cost data and production data

A better way to write the options would be to introduce another pair of incorrect but plausible options, hence we could write:

   c) gather cost data but not production data.
   d) gather production data but not cost data

*RULE: If you use the opposite form of the correct answer as one of your options, try to use another pair of opposites as well.

None of the Above, All of the Above. Good options like good stems are sometimes difficult to write. Perhaps this accounts for the overuse of the options "none of the above", "all of the above". The use of "none of the above" is justified only when all items in the test contain "none of the above" as an option and if it is the correct response in about 25 percent of the items. The option should also be used appropriately. Consider the following example:

1) An elastic demand, as that term is used in economics, would have a coefficient of elasticity of
   a) greater than one
   b) less than one
   c) one
   d) none of the above

Obviously this item has a problem and a three-option question. Option "d" cannot be a plausible choice. Of course, the student

MULTIPLE CHOICE QUESTIONS AND HIGHER THOUGHT PROCESSES

A frequent complaint levied against multiple choice examinations is that they test only low order mental processes such as recall and memorization. Naturally, economists opt for instilling in their students the ability to "analyze", "synthesize" and"think critically" about economic policy considerations. Multiple choice exams in economics, it is argued, do not measure up to these high aspirations.

If one considers the typical multiple choice examinations in economics, there is considerable truth to the argument that they don't test higher mental processes. But the fact that they generally do not is not the same thing as they cannot. The simple reason that we usually do not see multiple choice questions in economics that test higher order abilities is that they are rather difficult and time consuming to develop; it is much easier, or so it is thought, to write essay questions. Still, multiple choice questions have the virtues stated at the outset of this chapter, and being able to recognize and write such questions can only add a new dimension to your testing skills.

Identifying Cognitive Levels. Refer back to Table 1 on page 195 for a moment, in the left hand column we listed the content areas over which we were going to test. The horizontal categories, recognition and understanding, simple application, and complex application, show the level of knowledge we're trying to tap. These categories are the substance for what follows, so let's take a closer look at them.

Recognition and understanding questions (RU) were defined as those which could, in principle, be answered by reference to a textbook. RU questions needn't be answerable by rote memory. Better questions of this type involve a restatement or recognition of an idea in somewhat different language from that in which it was originally learned. They may call for explanation, for summation, or for the simple extension of an idea. Thus, such questions can and should test understanding - albeit on a generally low level rather than recall. RU questions are, in fact, the type one sees most often in student manuals and workbooks. The following is an example of an RU question:

1. Which of the following has contributed most to long run economic growth in the United States
   a) Increasing personal income tax rates.
   b) Reducing hours worked per week to spread employment among more people.
   c) Increasing tariffs on imported goods which compete with domestically produced goods.
   d) Increasing levels of education and technological improvement.

Our next category is simple application (SA). A simple application of a principle or concept may be defined as one in which the student demonstrates that he can utilize that principle or concept when its use is specified or clearly implied. SA questions are probably the next largest group encountered in student manuals and workbooks. A typical SA question would look like this:

1. Suppose a large city is investigating the elimination of rent controls on housing at a time when the vacancy rate is extremely low -- only 1% of all apartments in the city are vacant. Which of the following is most likely to occur if rent controls are eliminated?
   a. An increase in the demand for housing, followed by a decrease in the supply of housing.
   b. An increase in rents, followed later by an increase in the supply of housing.
   c. A decrease in rents and a decrease in the supply of housing.
   d. No change in rents, since price controls are usually set where supply and demand intersect.

Note how this question differs from the RU example. In the RU question the student must be familiar with the concept of long-run economic growth. He must then associate growth with the correct response (d) which is usually clearly specified or implied in most basic texts.

The SA item requires the student to relate demand - supply principles to explain a situation. For this reason the item is seen as a simple application rather than as RU. The student must now not only know and recognize the principle or concept, he must also see its relevance in explaining the problem. Thus, with SA type items we are beginning to ascend the ladder of higher cognitive skills.

The complex application question (CA) takes us still further up the cognitive ladder and brings us close to the reasoning of economists when they speak of ability to analyze, synthesize or think critically. A complex application requires that the student demonstrate the ability to select and utilize a concept or principle when its use is not specified. A complex application may also be one in which two or more concepts or principles must be related in some manner not previously presented to the students. CA questions may be difficult, even if they involve widely known concepts, because students either do not readily associate the concepts with the problem at hand, or do not grasp the significance of the concepts in solving the problem. Since it is the CA questions which attempt to get at higher order mental processes, let's take a look at a few.

The question is based on the following information:

1. "Because of rapidly rising national defense expenditures, it is anticipated that Country A will experience a price inflation unless measures are taken to restrict the growth of aggregate private demand. Specifically, the government is considering either (1) increasing personal income tax rates or (2) introducing a very tight monetary policy."
    1. If the government of Country A wishes to minimize the adverse effect of its anti-inflationary policies on economic growth, it should use ...
        a. The tight money policy because it restricts consumption expenditures more than investment.
        b. The tight money policy, since the tax increase would restrict consumption expenditures.
        c. The personal income tax increase since it restricts consumption expenditures more than investment.
        d. Either the tight money policy or the personal income tax rate increase since both depress investment equally.

This question calls not only for an analysis of the information presented, but also for an indication of the most appropriate monetary and/or fiscal policy and the expected effects of the policy. Thus several different concepts and principles must be related to obtain the answer to the problem.

Another complex application question:

"Unemployment last month was 3.6% of the work force, a slight reduction from the previous month. For the past fifteen months, unemployment has been under 4% of the work force. Consumer prices last month increased by one-tenth of a per cent—a total gain of 1% over the level of one year ago. Total production of goods and services is projected to be 5% higher this year than it was in the previous year."

Which of the following policies would be most appropriate?

a. Reliance on existing automatic economic stabilizers.
b. An increase in both personal and corporate income taxes.
c. The introduction of additional corporate tax incentives.
d. Minimum wage legislation to increase the basic pay and expand the number of workers covered by minimum wages.

This question was obviously written by a romantic. We have a situation of fullemployment, relative price stability and strong economic growth. Romantics aside, however, the student is required to know, among other things, the concepts unemployment rate, consumer prices, goods and services; to relate the significance of the percentage rates attached to each; and to choose the appropriate response. Even weighing the options is a complex task for a beginning student, as the item statistics on this question attest. But, more on item statistics in another section of this manual.

OBTAINING GOOD OBJECTIVE ITEMS

There are two principal sources of objective questions: You can either get them from departmental files, student workbooks and manuals, or you can write them yourself. The first source is preferable to the latter since item writing is time consuming. However, there is a drawback to getting your questions from existing published sources; namely, that you are unlikely to find many CA type questions. This shouldn't be too surprising. Authors of workbooks and manuals are called upon to write hundreds of questions in a very short period of time, with the predictable result that most of them turn out to be of the RU, SA variety. Despite this, existing sources of questions are still your best bet. You should, though, try to write some of your own questions from time-to-time. Writing items will help reinforce the rules stated above. Also, you'll probably turn out to be your own best source of complex application questions.

REFERENCES

Gronlund, Norman E., Construction Achievement Tests, Prentice Hall, Inc., Engelwood Cliffs, N.J. 1968. (See especially chapters 1-4 for treatment of planning, the identification of educational objectives, and constructing tests which get at complex application.)

Sanders, Norris M., Classroom Questions - What Kinds?, Harper and Row, Inc., New York, N.Y. 1966. (A good introduction to the ideas underlying the taxonomy of questions -- memorization, interpretation, analysis, etc.)

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DO'S AND DON'TS

DO - some hard thinking before you put your test together to make sure you have sampled the content adequately and are getting at the appropriate cognitive level. A simple matrix helps.

DO - pay close attention to the wording of both the stem and the options in each question.

DO - try to collect questions from student manuals, workbooks and departmental files that meet the criteria for "good" items.

DO - attempt to write a few test items of your own in order to get a feel for what is involved in good item construction and to build your own "question bank".

DON'T - try to put your test together just before the day of the exam. Jot down important ideas as they occur to you during the course of the semester and then write or find items that cover the area.

DON'T - try to write all of your own items for a given exam.

DON'T - fret if your items are not perfect in all respects. Eliminating glaring errors would be a huge step forward in our testing process.

MULTIPLE CHOICE OBJECTIVE TEST
Exercise 1

Review Notes

1. Briefly state three advantages of using multiple choice questions:

   (1)____

   (2)____

   (3)____

2. On a separate sheet of paper, briefly state three rules for constructing good stems for multiple choice questions.

3. On a separate sheet of paper, briefly state seven rules for constructing good distractors for multiple choice questions.

4. On a separate sheet of paper, identify and define in your own words each of the cognitive categories mentioned in the chapter.

5. Select any chapter in one of the instructors manuals or "test banks" that accompany most introductory economics text books, and construct a test specifications matrix from the multiple choice questions contained in the chapter you have selected. Analyze the distribution of questions in your matrix with regard to content and cognitive levels "covered".

MULTIPLE CHOICE OBJECTIVE TEST
Exercise 2

Each of the following items violates one or more of the rules for good question construction cited in the chapter. See if you can identify the rule(s) violated, and suggest ways of improving each item.

1. The Federal Reserve System's primary function has changed over the years. Originally, it was to provide an elastic money supply for the nation. Today its main function is to:
   a) regulate banks
   b) help stabilize the economy
   c) insure bank deposits
   d) collect income taxes

2. Which of the following would result in lower prices and increased output?
   a) an upward shift of the supply schedule only
   b) an upward shift of the demand schedule only
   c) an upward shift of the demand schedule and a downward shift of the supply schedule
   d) a downward shift of the supply schedule with no shift of the demand schedule

OVER

3. The Federal Government

   a) has the power to raise and lower income taxes
   b) sets the discount rate
   c) administers the property tax
   d) has insignificant impact in our economy

4. A firm will not run afoul of the Antitrust laws if it does not

   a) sell its product at a reasonable price
   b) monopolize the market
   c) produce at a point where MC=MR
   d) oppose labor unions

MULTIPLE CHOICE OBJECTIVE TEST
Exercise 3

Select one of the following stems for a multiple choice question, and write four appropriate options for the stem you have selected. Have a colleague or a fellow student do the same thing. Compare your results.

New York City Licenses taxicabs. For many years now no new licenses have been issued. There is an unofficial market in the "medallions" that signify possession of a license. In 1959 the price of a medallion was $17,000 in this market. Suppose that New York City decides to freely issue additional licenses to anyone willing to pay a $10,000 fee. The action would:

General Motors Corporation recently acquired the exclusive manufacturing rights to the revolutionary Wankel rotary engine. When it is finally developed and put into producton, G.M. engineers expect the engine to be smaller, more powerful, cleaner, and cheaper to operate and to manufacture, when compared to engines currently in use. (Source: "Wankel Wrinkle: GM Sees 'Dirty' Engine as Eventual Solution to Pollution by Autos," Wall Street Journal, November 19, 1970.)

OVER

"During the last five years in our industry the prices of raw materials have increased, labor costs are up, machinery costs are up. Yet, we have held our product price constant and our profits have actually increased." Which of the following statements offers the best explanation for this phenomenon?

There is considerable unemployment in the economy. The government is proposing to finance a $200 million increase in expenditures for goods and services with a $200 million increase in income taxes. If interest were kept unchanged, and if consumers always spend 90 percent of their after-tax incomes, such a scheme would have what effect on national income?

MULTIPLE CHOICE OBJECTIVE TEST
Exercise 4

An Illustration of a Problem Arising From a Multiple-Choice Exam Question

Here is an interesting exchange about one of the questions in a recent Economics 101 examaination. The question at issue is the following:

> Start from the equilibrium position shown in the diagram. If bacon is conclusively proven to be cancer-producing in humans, and at the same time a new technology is developed lowering the marginal cost of production, the following will result:
>
> (a) a larger quantity sold at a lower price
> (b) a lower quantity sold at a higher price
> (c) a lower price direction of quantity change unknown
> (d) a lower quantity sold but direction of price change unknown
> (e) none of the above

This question caused a student in Economics 101 to visit Professor H. to discuss the grading of the question. Subsequently, the student wrote the attached letter to Professor H. Please read the student's letter. Next read Professor H's reply.

After reading the attached letters be prepared to discuss your answers to these questions:

1. What is your reaction to the student's criticism? Does she have a valid point? If so, what is it? If not, why not?

2. What is your reaction to Professor H's response? Did he adequately defend his position? If so, why? If not, why not?

3. How might the question be reworded to make it unambiguous and yet retain the concepts Professor H. was attempting to test?

STUDENT'S LETTER

Professor H:

I was in your office Friday to discuss a question on your exam. The question was the one on bacon being conclusively proven to be cancer producing in humans. I realize you are not going to change your mind about the answer. I do feel, however, the question was ambiguous and a very poor question for an exam.

I also find your attitude toward what should be produced on an exam very poor. I am taking economics because the School of Resources and Consumer Sciences feel it correlates to the food industry. When I am asked a question in Nutritional Sciences I am expected to consider all the facets of it. I should think the economics department would feel the same way and not punish students for applying their knowledge. I did not come to the University to learn Nutritional Science and store it in one corner and learn Economics and store it in another.

I knew the "correct econ." answer to the question. I also knew carcinogenic materials are not supposed to be on the market by order of the F.D.A. I correlated the two subjects. If I was asked the question again I would reply the same way. Too often I have been asked to "think only econ." or "think only soc." on an exam. I am tired of producing what the professors wish to hear.

For your additional information for future reference I have asked my Nutritional Science professor about the question. He said the material should be taken off the market but probably would be modified to rid it of its carcinogenic properties. It has to do with the netrogen in bacon and is under study now. That choice was not covered in c. I still feel none of the above was the "most correct answer."

Sincerely,

Janet L.

PROFESSOR H'S REPLY

Dear Janet:

I received your note of concern regarding one of the questions on the Econ 101 exam. I understand why you are concerned. At one level I can sympathize with your gripe. At another level, I cannot.

I can sympathize with your gripe because you, by bringing additional considerations to bear on the question, developed an answer which--given those considerations--is correct.

For this very same reason, I cannot sympathize with your gripe. The answer you chose is correct only because of the additional conditions which you imposed on the problem--namely, the existence of an FDA which, upon gaining evidence regarding carcinogenic substance in a product, removes it promptly from the market. In fact, in the real world, the FDA may or may not react so effectively as you presumed. It has in some cases, and it has not in others. (After all cigarettes have been conclusively demonstrated to cause cancer and they have not been removed from the market.) But this is not really the point. The point is that you were able to pick an otherwise incorrect answer and, by imposing additional conditions on the question, make that answer correct. Indeed, almost every one of the questions on the test could be answered correctly by one of the incorrect answers if additional assumptions are made or conditions imposed, which assumptions or conditions are not stated or given in the problem.

As I tried so often to make clear in the lecture, the basic purpose of this micro module was to lay out certain basic concepts and models so that they could be used later in the course to analyze real world problems. One of the most basic of these models is the supply and demand model, in which the quantity demanded and the quantity supplied are declared to be functions of certain variables. When these variables change, the quantity supplied or demanded changes and a new equilibrium quantity and price results. The purpose of the question about which you are concerned--indeed, the entire exam--is to test your knowledge of these analytical relationships. It is not to test your knowedge of the behavior of the anti-trust division of the Justice Department, the Department of Agriculture, or even that of the FDA. All of these matters were not touched upon in the course and, while important, they are not relevant to answering a question regarding the mechanics of an economic model.

I hope that you see more clearly my reason for not accepting your answer. If you are still concerned, I would be willing to talk with you further about it.

Sincerely,

Professor of Economics

P.S. You might be interested in showing this to your Nutritional Science professor so he too could see the basis for the question and answer.

CHAPTER 9

THE ITEM ANALYSIS OF MULTIPLE CHOICE TESTS

Arthur L. Welsh

NEEDS

An economics professor with an uncommon fondness for multiple choice tests had built up an impressive "bank" of questions. Each question was carefully indexed according to subject area and all were dutifully transferred to computer tape.

When the professor gave an examination, he specified the number of items he wanted on the test and the content areas to be covered. He then gave his specifications to the computer center, which in turn, quickly produced the desired exam. Moreover, by having his students mark their responses on a form furnished by the center, the exams were scored accurately and quickly by the computer.

Although the professor was grateful to the computer center for helping him out with his testing chores, two things troubled him. One was that despite the time and care he spent building his test "bank", his students complained bitterly to him about the fairness of his examinations. The second thing that troubled him was the way the computer center wasted paper. While he only wanted his examinations graded and scores arrayed, the computer center seemed to insist on sending him a great deal of "extraneous" data as well.

Actually the professor's troubles with his students and the computer center were not all that separate. Had he bothered to analyze some of the "extraneous" material from the computer center, he would have gotten a clue to his problems with his students, because in among those pages of computer output were item analysis tables; tables that could have shown him, for example, that his tests were simply too difficult; that they did not adequately discriminate between the better and poorer students; and that some questions were poorly worded. Surely had the professor analyzed and acted upon this information his students would have benefited. Written examination results are the common method used to assign course grades, and grades are important to students. They are crucial to students seeking jobs, gaining admission to graduate and professional schools, securing fellowships, honors, awards and the like. Given the importance of grades, we should try to make the tests on which they are based fair to students and useful for our purposes as teachers.

Careful analysis of item statistics on multiple choice examinations can help improve these tests for grading purposes as well as help instructors determine the effectiveness of their own teaching efforts.

GOALS

The goals of this paper are to acquaint you with the technique of item analysis as it applies to multiple choice tests, and illustrate how this technique can help you prepare better multiple choice examinations.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter you will be able to:
   a) describe three characteristics of good multiple choice test items.
   b) interpret a typical item analysis format.
   c) define the two statistical terms used to judge the adequacy of individual test items.
   d) apply statistical tests to determine the internal properties of test items.
2. After reading this chapter, and given item analysis data, you will be able to:
   a) identify test items that meet the statistical criteria for good questions.
   b) indicate why some questions fail the statistical tests for "goodness".

AFFECTIVE OBJECTIVES

1. After reading this chapter and completing the exercises it is intended that you will:
   a) recognize the importance of using an item analysis in judging the adequacy of multiple choice test items.
   b) incorporate item analysis techniques into your regular examination practices where appropriate.

OUTLINE OF MAIN POINTS

- Reading item analysis tables
    - item difficulty
    - item discrimination
    - examples
- References
- Do's and Don'ts
- Exercises

THE ITEM ANALYSIS OF MULTIPLE CHOICE TESTS

Item analysis is a statistical technique for analyzing the internal properties of multiple choice test questions. We do not want our test items to be too easy or too difficult for the group we are testing. We want our items to be answerable correctly by proportionately more of the brighter students, than the poorer students. And we want our incorrect options to attract students who don't know how to apply their knowledge of economics. Merely looking at test questions will not help us determine whether they have these desirable properties, but item analysis can.

READING ITEM ANALYSIS TABLES

Table 1 shows item data taken from an experimental form of Test of Understanding in College Economics (TUCE). To get a feel of what we are doing lets' start with item number 1:

1328 students from 13 colleges and universities answered this question. Look at the second column headed "group". Students were arbitrarily divided into three groups on the basis of their total test scores: high (top 27% of the group, or top 359 students), low (bottom 27% of the group, or bottom 359 students) and middle (middle 46% of the group or middle 510 students). Total indicates the statistics for the entire 1328 students taken as a whole.

The next four columns - options 1-4 show the number (N) and the percentages (PCT) of the students in each group who selected particular options on question number 1. The seventh column shows the number and percentage within each group who did not answer the question. That is, two students from the middle group and three from the low group did not respond, for a total of five students. The asterisk (*) shows the correct option for each question - in this case the correct option was number 4.

Column 8 - labelled P - stands for the total percentage of students selecting the correct option. The last column - r is a correlation coefficient which will be explained below. Thus, summarizing our data for question number 1, we have the number and percentage by groups who selected each option; we see that 1120 students or 84%, selected the correct option, and of this group 338 or 94% of the high group answered the question correctly, 521 or 85% of the middle group did so, and only

TABLE I

TEST ITEM DATA
(1328 students)

Item No.	Group	Option 1		Option 2		Option 3		Option 4		No Response		P	r
		N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	Pct	
1.	High	6.	2.	4.	1.	11.	3.	338.	94.*	0.	0.		
	Mid	15.	2.	28.	5.	44.	7	521	85.*	2.	0.		
	Low	34.	9.	30.	8.	33.	9.	261.	73.*	3	0.		
	Total	55.	4.	62.	5.	88.	7.	1120.	84.*	5.	0.	84.	.37
2.	High	152.	42.	20.	6.	77.	21.*	108.	30.	2.	1.		
	Mid	256.	42.	62.	10.	68.	11.*	220.	36.	4.	1.		
	Low	154.	43.	40.	11.	27.	8.*	127.	35.	11.	3.		
	Total	562.	42.	122.	9.	172.	13.*	455.	34.	17.	1.	13.	.24
3.	High	61.	17.	78.	22.	160.	45.*	48.	13.	12.	3.		
	Mid	137.	22.	164.	27.	202.	33.*	81.	13.	26.	4.		
	Low	89.	25.	92.	26.	92.	26.*	50.	14.	36.	10.		
	Total	287.	22.	334.	25.	454.	34.*	179.	13.	74.	6.	34.	.21
4.	High	177.	49.*	60.	17.	64.	18.	58.	16.	0.	0.		
	Mid	169.	28.*	122.	20.	167.	27.	140.	23.	12.	2.		
	Low	46.	13.*	78.	22.	90.	25.	122.	34.	23.	6.		
	Total	392.	30.*	260.	20.	321.	24.	320.	24.	35.	3.	30.	.42
5.	High	50.	14.	112.	31.	143.	40.*	53.	15.	1.	0.		
	Mid	99.	16.	232.	38.	147.	24.*	127.	21.	5.	1.		
	Low	46.	13.	151.	42.	47.	13.*	97.	27.	18.	5.		
	Total	195.	15.	495.	37.	337.	25.*	277.	21.	24.	2.	25.	.34

261 or 73% of the low group of students answered the question correctly. The incorrect options are read similarly.

Being able to read the table is necessary, but understanding what the table is saying is even more so. Basically, we want to know how good individual test questions are. One test of "goodness" - and perhaps the most important - is not revealed by item analysis tables, and that is whether the questions deal with something in economics we believe to be important. If they do not; that is, if they are trivial, or irrelevant, we need go no further. But if we are satisfied as economists that our questions have substance, then we can proceed to certain statistical tests of goodness contained in the tables. One of these tests is the level of difficulty of each question.

Item Difficulty. Typically in economics, we construct tests which rank one student relative to the others. That is, we score the exams, rank raw test scores from high - to - low and then apply some variant of the "curve" to award grades; i.e., the top 10% get A, the next 20% get B, 40% receive a "C", 20% a "D" and 10% a failing grade.

This system works reasonably well if the test is neither too easy nor too difficult. Unfortunately there is no sure way to determine the level of difficulty of test questions by simply looking at them. Consequently, in the absence of firm information on item difficulty we cause ourselves needless problems. For example, on a test composed of easy items, most students would cluster at the top and the restricted range of scores would make it impossible to rank them in any meaningful way. The same holds for a test composed of all difficult items.

Fortunately, item analysis provides us with information on item difficulty. In Table 1 note that "P" in the next to last column, stands for the percentage of students answering question 1 correctly - 84%. The "P" value can range from zero to one. The closer the value approaches one, the easier the question. Values approaching zero indicate the question is difficult.

A good test should be made up of items with a distribution of difficulties ranging from very difficult to very easy. We would, of course, reject questions with a P value of zero and those with a P value of 1.00 since those questions would tell us nothing about student achievement. Since the TUCE is a four-option test, there is the probability of .25 of being correct by chance alone, and we would therefore most likely reject questions with a P value below .25. Testing experts suggest that examinations should include questions with a wide range of difficulties say from 30 - 70 percent, and with an average difficulty level of approximately .50. Raw scores on a test confirming to these specifications would have to be scaled to conform to the grading distribution you wish to employ, since an average score of 50% is not considered "passing" at most schools.

The P value also tells us something about our incorrect options. Turn to Table 1 again and look at question one. Four percent of the total group chose option one, five percent option two, and seven percent option three. Naturally with such an easy question the percentage of students choosing the incorrect options is rather small. But the figures show something else. They show us that the percentage distribution among incorrect options is fairly even and that all of our options were chosen by someone. That means that all of our incorrect distracters are plausible - an important rule for writing good options.

Item Discrimination. One of the most important attributes of a test item is its power to differentiate among students of different abilities. On a given test question, one would hope that a greater proportion of good students would pick the correct option, as opposed to poorer students; alternatively, a smaller proportion of good students as opposed to poorer students should pick each incorrect option as being the correct answer. The statistic used to tell us how well our question differentiates between the better and the poorer students is the index of discrimination. Actually, the index is a correlation coefficient with a range of - 1.00 to + 1.00 and is designed to measure the relationship between the score on an individual item and the total test score, with the latter being used as a proxy for ability. A high positive correlation between an individual item and the total test score indicates that students with high total test scores tend to answer the item correctly more often than students with low total test scores. For a questo be a good discriminator, experts tell us that the value of the index of discrimination should be above .30. If the value of the discrimination index falls much below .30, the item should be replaced or rewritten.

Examples. Now let's look again at question number 1 in Table 1. Under the column headed "r" - the index of discrimination - we see the figure .37. This is well above our cutoff of .30 and tells us that question 1 is a good discriminator, i.e. that high scorers on the total test tend to answer this question correctly more often than low scorers.

We can summarize our analysis of question one rather simply: it is a relatively easy question, the incorrect options are equally plausible distractors, and it is a good discriminator. If we revised our test, we'd keep this item. However, let's look at item number 2. Option 3 is the correct answer, but barely one out of five students answered the question correctly. Moreover, option 1 was highly and uniformly attractive to students in the high, middle and low groups. These two facts alone - the small percentage of high students answering the question correctly, and the large percentage of all students attracted to a single incorrect option - are enough to make this item suspect. If we refer to the P value and the r value, we can clinch our suspicions. The data shows that it is a very difficult question for all students (P=13 percent). Also, it is a poor discriminator having an index of discrimination well below our cut-off level of 0.30.

What do we do in a case like this? The easiest thing to do is to throw the item out and insert another. But before you do, it is a good idea to take a hard look at the item. Check the stem to see if it is unambiguously worded. Then check the options, especially the first one. You may discover on reexamining the options, that option 1 may in fact be defensible. Your choice now, is between re-writing the options in the hopes of improving its index of discrimination and P value, or discarding the question completely.

What can we say about the remaining three items in Table 1? Item 3 is fairly difficult (P-34%) and has a low index of discrimination (.21). The problem could be the wording of the stem and/or the options The incorrect options appear to be attractive to all students. Moreover, 6% of all students were apparently so baffled that they didn't respond at all. An occasional difficult item like this one is ok, but unless we can improve its discriminating power, we should substitute another question for it.

Item 4 seems to be a good one. It is relatively difficult but has a good index of discrimination. The students choosing incorrect options are spread nearly evenly among the three options. The question should be retained.

While item 5 has an acceptable index of discrimination, it is very difficult, with a P value equal to chance. More students chose incorrect option 2 than the correct option although fewer of the top group did this than did the other groups. This helps explain why it is an adequate discriminator despite its overall difficulty. Option 2, however, should be checked to see why it is so attractive to such a large number of students.

SUMMARY

If we are satisfied that a test covers concepts and principles that we consider to be important, we can use the information that item analysis provides to determine if we have good questions and a good test. By examining the P values, we can determine if we have the degree of difficulty desired. The index of descrimination reveals if the question is able to differentiate between good students and poor students. By looking at the number and percentage of high, middle and low scoring students that chose each incorrect option, we are able to determine that each incorrect option is plausible or perhaps that one option, thought to be incorrect, is too plausible. In short the information provided by the item analysis enables the test writer to evaluate the internal qualiites of the items, to make revisions, and finally, to know that he has written items which accomplish what he set out to do.

REFERENCES

1. Ebel, Robert L., *Measuring Educational Achievement*, Prentice Hall, Englewood Cliffs, New Jersey, 1965, pp. 346-375. (A somewhat technical, but readable treatment of item analysis to improve test quality. Especially good in presenting a review of relevant literature on the subject.)
2. Furst, Edward J., *Constructing Evaluation Instruments*, David McKay Co., New York, 1964, pp. 309-329. (A compact treatment of item analysis. Offers some useful words of caution in item analysis.)

DO'S AND DON'TS

Do - remember that tests are only as good as the content you've selected to examine students over.

Do - examine each question in your item analysis carefully and revise your questions on the basis of the information generated.

Do - pay attention to the difficulty of each item as well as the average difficulty of the entire test.

Do - make sure that your questions are adequate discriminators (.30 or higher).

Don't - keep using questions with poor statistical properties no matter how good you think they are

Don't - try to judge the adequacy of your test by merely looking at the questions. Use an item analysis.

THE ITEM ANALYSIS OF MULTIPLE CHOICE TESTS
Exercise 1

Review Notes

1. List three internal characteristics of good multiple choice test items:

   (1)____

   (2)____

   (3)____

2. Is it possible for a test to have good internal properties and still be a poor test question? If so, why? If not, why not?______________

   ____

   ____

   ____

   ____

3. Define the following two items in your own words:

   (1) item difficulty______________________________

   ____

   (2) index of discrimination________________________

   ____

TABLE 2

Item No.	A	B	C	D
1.	R= .40 * D= 79.86	R= -.22 D= 4.17	R= -.29 D= 3.47	R= -.19 D= 12.50
2.	R= -.31 D= 1.39	R= -.15 D= 9.72	R= -.20 D= 4.17	R= .34 * D= 84.72
3.	R= 0.00 D= 0.00	R= -.08 D= 2.08	R= .17 * D= 91.67	R= -.14 D= 6.25
4.	R= -.19 D= 6.25	R= -.27 D= 10.42	R= -.12 D= 14.58	R= .37 * D= 68.75
5.	R= -.31 D= 3.47	R= -.01 D= 6.25	R= .21 * D= 85.42	R= -.07 D= 4.86
6.	R= -.12 D= 1.39	R= .45 * D= 61.81	R= -.25 D= 16.67	R= -.28 D= 20.14
7.	R= -.31 D= 5.56	R= .44 * D= 84.72	R= -.25 D= 8.33	R= -.16 D= 1.39
8.	R= 0.00 D= 0.00	R= -.16 D= 4.17	R= .46 * D= 83.33	R= -.42 D= 12.50
9.	R= -.36 D= 5.56	R= .51 * D= 81.25	R= -.18 D= 3.47	R= -.28 D= 9.72
10.	R= -.07 D= 3.47	R= -.39 D= 6.94	R= -.25 D= 13.89	R= .46 * D= 75.69
11.	R= -.27 D= 13.19	R= -.28 D= 3.47	R= .43 * D= 78.47	R= -.15 D= 4.86
12.	R= .36 * D= 68.06	R= -.22 D= 27.78	R= -.25 D= 2.78	R= -.24 D= 1.39
13.	R= -.06 D= 2.08	R= -.31 D= 20.14	R= -.22 D= 4.86	R= .40 * D= 72.92
14.	R= -.29 D= 34.72	R= -.04 D= 21.53	R= .42 * D= 33.33	R= -.13 D= 10.42
15.	R= -.12 D= 1.39	R= -.24 D= 11.81	R= .36 * D= 81.94	R= -.23 D= 4.86

THE ITEM ANALYSIS OF MULTIPLE CHOICE TESTS
Exercise 2

Table 2 on the facing page (12) shows an item analysis of fifteen questions. Its format is different from Table 1 but not substantively so. The letters A, B, C, D, designate the respective options, while R is the index of discrimination. Observe that while in Table 1 we have data on the top 27%, bottom 27%, and middle 46% of students, none of that information is available in Table 2. We see in Table 2, however, that the coefficients for R in each of the incorrect options is preceded by a negative (-) sign. Where the coefficient is rather large, say about - .30, this means that this incorrect option has a high negative correlation with the total test score and that students who were attracted to this option did poorly on the exam. A lower coefficient would, of course, suggest a weaker relationship. D is the percentage of students choosing each response. The asterisk (*), as in Table 1, shows the correct response for each question.

Examine Table 2 and then answer the following questions:

1. From the standpoint of difficulty (D) which item is the easiest and which one is the most difficult?

   The easiest item is question number________.

   The most difficult item is question number_______.

2. Which item(s) would you likely reject on the basis of being poor discriminators?

   Question number(s)____

OVER

3. Suppose question number 3 in Table 2 was the following:

   The fact that airplanes are stacked over O'Hare International Airport in Chicago at rush hour shows that:
   a. There definitely should be fewer flights to Chicago during the day.
   b. The facilities at O'Hare definitely should be expanded.
   c. The price of tickets for rush hour flights to Chicago is definitely below the equilibrium price.
   d. No passengers should fly into Chicago during rush hour.

   a) Do the item statistics on this question meet our statistical test of goodness? Why or why not?______________________________

   ____

   b) If you had the choice of changing one option in question 3, which option would it be? Why?______________________________

   ____

4. Examine the following test items X and Y and then answer these questions for each item.

   a) Which option do you think is the most correct option for:
   item X________item Y________

   b) Which option do you think is the least correct option for:
   item X________item Y________

   c) Which of the two items do you think is the most difficult item?
   item____________________

   d) Which of the two items do you think is the best discriminator?
   item____________________

Item X

Which, if any, of the following statements would be valid for any type of economic system?

I. The real cost of a unit of land is the value it would create when put to its best alternative use.

II. The real cost of a good is the value of the other goods that must be foregone in order to produce it.

   a. I only
   b. II only
   c. Both I and II
   d. Neither I nor II

Item Y

The steel industry has recently argued that the government should establish quotas to limit the volume of steel imported into the U.S. and thus raise the price of steel in this country. Such limitations, if established,

a. would lower the price of automobiles.
b. would have no effect on steel usage.
c. would encourage the use of aluminum instead of steel for beverage cans.
d. would improve the competitive position of steel as compared to glass, wood and other structural materials.

Now refer to Table 2 where item X corresponds to item number 5 and item Y corresponds to item number 8 in the table. Check your answers above against the data in the table. If you didn't answer all the questions correctly don't feel bad. It's virtually impossible to determine the properties of a series of questions by simply looking at them -- a point made earlier but one to keep in mind.

5. Using the same two items (#5 and #8 in Table 2) answer this question:

Inasmuch as the level of difficulty of the two items is very similar, what accounts for the fact that item 5 is such a poor discriminator while item 8 is a relatively good discriminator? (HINT: remember what the negative coefficients in the incorrect options tell us. Also check the D distribution.)

a) Item 5 is a relatively poor discriminator because ______________

____

b) Item 8 is a relatively good discriminator because ______________

____

6. Item numbers 4, 6 and 13 in Table 2 have three things in common. Can you name them?

(a) ____

(b) ____

(c) ____

Chapter 10

ORGANIZING AN ECONOMICS COURSE

W. Lee Hansen

NEEDS

Few economics courses realize their full potential for enhancing student learning and for making their teaching a richly rewarding experience. Instructors frequently realize after a course is well underway that greater planning beforehand would have greatly improved its effectiveness, but by then it is too late. Several deterrents exist. Not only are the incentives to improve courses relatively weak, but in addition no method for systematically trying to improve a course--from conception to its subsequent evaluation--has been spelled out in any great detail.

GOALS

The purpose of this chapter is to outline an approach to organizing an economics course by indicating the key steps in the process of course development. These six steps are presented in sufficient detail to provide useful guidance to new as well as experienced economics instructors. Considerable attention is given to the introductory course.

OBJECTIVES

COGNITIVE OBJECTIVES

After reading this chapter, you will be able to

1. identify three reasons for using the course development approach discussed in this chapter.
2. state the six steps in course development.
3. give three examples of the questions and issues to be considered at each step.
4. describe sources of additional information on different aspects of course planning.

AFFECTIVE OBJECTIVES

After reading this chapter and completing the exercises, it is intended that you will

1. value the importance of careful course development.
2. incorporate the six steps into the development of your own courses.

OUTLINE OF MAIN POINTS

Why Course Development?

- To personalize our courses.
- To make explicit our role as managers of instructional resources.
- To reflect the economist's approach.

A Broad Outline of Course Development

Setting the Objectives (Step 1)

Understanding the Opportunities and Constraints (Step 2)

Planning the Course (Step 3)

- Evaluating Student Learning
- Measuring Achievement
- Selecting Materials to Facilitate Learning
- Structuring Class Time
- Deciding on a Teaching Approach
- Writing the Course Syllabus

Training the Teaching Assistants (Step 4)

Implementing the Course (Step 5)

Evaluating the Course (Step 6)

The Complete System

Conclusion

Appendix

Exercise

ORGANIZING AN ECONOMICS COURSE

This chapter outlines an approach to organizing an introductory economics course by indicating the key steps in the process of course development and the many questions that must be answered as an instructor proceeds through these steps, from the initial planning of the course to the final evaluation of its success. To give concreteness to the discussion, I use examples from my own recent experience teaching a one-semester general economics course at the University of Wisconsin-Madison. This is a large lecture-type course with the once-a-week small sections taught by teaching assistants. Clearly, the size of the course and the many resources involved force a degree of organization. Such organization may not be necessary in small classes of 25 or 30 students; this does not, however, make it undesirable.

The systematic approach outlined here should make it possible both to provide more diverse and stimulating learning experiences for students and to make teaching a more challenging and rewarding experience for instructors.

WHY COURSE DEVELOPMENT?

Aside from these general goals, there are three specific reasons for stressing the importance of course development: The first is to personalize our courses in order to make the most of the particular resources and aims of the instructor and the students. The second is to make explicit our role as managers of instructional resources. The third is to point out that the questions of course development affect the economist's approach in that they are much like the big questions What? How? and For Whom? that we typically address in our economics teaching.

To Personalize Our Courses. Most instructors of economics do what appears to be a reasonably satisfactory job of teaching by following the tradition of course planning they observe around them. This tradition begins with the selection of a familiar and comfortable textbook that does not clash too sharply with the basic approach they plan to take in their lectures and discussions. It then proceeds with the development of a brief syllabus that centers around several lectures per week, the standard two one-hour exams and a final exam--all of which focus heavily on material in that textbook. Their teaching and courses this year thus tend to be much like they were last year, and these in turn tend to be like those of their predecessors. Whether this instruction comes near exhausting the possibilities open to us rarely receives more than passing attention.

The opportunities for going beyond this rather unimaginative model of teaching are legion. But to do it requires us to ask what we want to do, what we want our students to accomplish, and then to develop a course that is tailor-made to accomplish our objectives. Such a course will necessarily bear our own particular stamp. As such, it will increase our interest in attaining the objectives we have set and, above all, it will invigorate our teaching in the classroom.

To Make Explicit our Role as Managers of Instructional Resources.

Teaching is more than simply standing in front of a classroom of students. It involves directing substantial and diverse resources so as to achieve the objectives of our course and our teaching. I had never been fully aware of this role until several years ago, when I participated in restructuring our large (1000 students) one-semester, 4-credit, general economics course. What startled me was the large volume of resources devoted to such a course.

First, the direct resource costs added up to about $100,000: The time of faculty, teaching assistants, and secretarial help came to about $75,000. Student purchases of books and supplies add another $20,000. The use of rooms and equipment added, perhaps, another $5,000.[1]

Second, and much more important quantitatively was the value of student time devoted to the course. If we assume that students spend an average of three hours a week per course credit attending classes and studying, and if we value the resulting 12 hours per week over 16 weeks at a conservative $2.30 per hour (the then current minimum wage) the value of student time is about $440,000. The subsequent minimum wage increase to $2.65 per hour pushes this figure to about $510,000.

The total value of resources devoted to this one course thus amounted to $550,000--over half a million dollars for one semester alone! The realization that as the faculty member in charge of the course I was responsible for seeing that these resources were effectively used was sobering. Few courses are this large, of course, but even courses of 30 students can entail resource costs of $20,000. I was jolted into thinking more deeply about the subject, and this chapter is one result of my thinking.

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[1] The calculations are based on 1976-77 cost data.

To Reflect the Economist's Approach. As resource managers in centrally directed economics (our classrooms), we face the big questions we discussed in every elementary economics course--the traditional three What to produce? How to produce? How to distribute the benefits? plus a fourth, How to provide for growth? These questions have obvious applicability to course planning and organization. What kind of economic knowledge can and should we try to impart to our students? Once we have decided this, we face the question of how to go about producing this knowledge most efficiently. Whatever we teach and however we do it, the benefits will not be distributed equally among all our students. This leads to a consideration of the benefits--Who benefits most? And how does altering what we teach and the way we teach it affect who benefits? Finally, we have the growth question How much does it pay to invest in improving our teaching relative to other uses of our time--both in the very short run when we are teaching assistants or young assistant professors and in the longer run as we climb the ranks to full professorships? What are the relevant costs and benefits? And to what extent are they monetary and non-monetary in nature?

This chapter concentrates largely on the "how" question, with a brief reference to the "growth" question in the conclusion. The question of How to produce? is considered in other chapters that deal with lecturing, discussion leading, and the like. The question of How to distribute the output? is not considered explicitly in this chapter or in the manual even though it is often implicit.[2]

A BROAD OUTLINE OF COURSE DEVELOPMENT

The six essential steps in the systematic development of a course are shown in Figure 1.

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[2] Some of these issues are considered in detail in W. Lee Hansen, Allen C. Kelley, and Burton A. Weisbrod, "Economic Efficiency and the Distribution of Benefits from College Instruction," American Economic Review, LX (May 1970), pp. 364-369.

Figure 1

The Six Steps in Course Development

Step 1. Setting the Objectives so that it is clear what knowledge and skills students must demonstrate by the end of the course.

Step 2. Understanding the Opportunities and Constraints facing the instructor so that the broad goals and specific instructional objectives can be more effectively pursued.

Step 3. Planning the Course so that the objectives can be achieved within the existing constraints. This means the development of a coordinated plan so that the various activities and materials serve to build the desired knowledge and skills of the students.

Step 4. Training the Teaching Assistants so that they can be effective in carrying out their important role of facilitating the course learning activities.

Step 5. Implementing the Course so that the actual teaching represents the culmination of the planning and provides the means for realizing the course objectives.

Step 6. Evaluating the Course so as to determine how far the objectives have been realized and how each of the various steps might be modified in future years to achieve more fully the course objectives.

The first step, setting the objectives, calls for identifying the broad goals as well as the specific knowledge and skills which students must be able to demonstrate through examinations and other assignments they do in the course. This specification of objectives is perhaps the most important task in course development because unless instructors know what they are trying to accomplish, their efforts at detailed planning and implementation will suffer from lack of direction.

Before we can plan the details of a course, a second step is also required, understanding the opportunities and constraints. Failure to take this step may well lead to misdirected planning because it will be planning that fails to consider what can and cannot be done. Step 2 is also important because the information thus acquired may force needed modification of the results from Step 1.

Completion of Step 2 leads naturally to Step 3, that of planning the course. The typical course encompasses a wide range of activities and materials that, all too frequently, are not coordinated and thereby fail to reinforce one another in promoting student learning. The task of planning effectively, however, may prove intractable not only because of its complexity. It may also occur because the objectives yielded by Step 1 are still fuzzy and/or the constraints inherent in the course have not been adequately identified in Step 2. The process of effective course planning may, thus, also help expose shortcomings that should have been corrected in previous steps.

In a course large enough to use teaching assistants, the training of teaching assistants, Step 4, is also a must. Though often neglected, such training is essential if the course is to operate smoothly and effectively in promoting student learning. Training can make the difference between an ordinary and a superior course. Some of this training can be completed before the course begins; other portions of it must be carried on regularly throughout the course. In some situations, it may be useful to begin teaching assistant involvement at Step 3.

The next step, Step 5, implementing the course, focuses on the activity that gets the most attention in teaching--the actual process of instruction. Implementation is not restricted to what actually happens in the classroom; it also includes the nonclass time which students and faculty allocate to the course. Thus, it is a broader concept than teaching technique or approach because it reflects the management and coordination of resources throughout the course.

The sixth and final step in the process of course development, evaluating the course, is essential in order to determine whether or not the objectives set for it have been realized. It is customary to think of evaluation as something that occurs only at the end of a course. This is a mistake; it can and should occur continually so that the direction of a course can be altered as needed.

The major steps in developing a course have now been specified. The next task is to indicate the detailed questions that must be considered at each step. There is also a need to highlight the interrelationships among the multitude of activities that go to make up a successful course.

SETTING THE OBJECTIVES (STEP 1)

To state that the objective of a course is to maximize student learning of economics, although it may be correct, provides little useful information to either the instructor or the students. The word "maximize" is vague; the term "economics" is extremely broad. We must not only ascertain the subject matter of the course. We must also, within the context of that subject matter, focus on the specific knowledge, skills, and information we wish the students to acquire from the course. The detailed course planning follows as a logical consequence. And so we must ask ourselves, what knowledge and skills do we want students to possess by the time the course ends?

At this point we find, as is often true, that one question leads to another. The knowledge and skills we select must be based on some conception of what we think people will or should be able to do with this knowledge long after they have completed their formal instruction. This, in turn, requires us to inquire into the nature of the potential demand for economics knowledge and skills. Are we preparing students to be potential graduate students, enlightened citizens, effective decision-makers in the private sector? The answers suggest what kinds of knowledge and skills are most necessary.[3]

For the example I have chosen -the large general economics course I have been teaching--the question becomes: What do we do for the vast majority of students who take at most a one-semester elementary economics course? They take no more courses because this one course either satisfies the requirements of a major in another field or college, or fails to whet their appetite for additional economics courses. Hence, the broad goal of such a course might be that of trying to insure that students know how to understand, analyze, and reach decisions about the economic problems they will face in their later roles as voters, workers, managers, and consumers.

To be able to realize such a broad goal, as well as to be able to measure how well one has reached it, entails specifying the types of behavior we want students to display by the end of the course. The types of behavior (called instructional objectives), once specified, are measurable. Specifying them can be difficult and time consuming, however, because the instructor is forced to think through, before the course begins to meet, exactly what he is trying to accomplish.[4] Many instructors have never thought as specifically as this about their teaching. They "wing it," instead, relying on the belief that if one "teaches economics" student learning will automatically result.

These are, for example, the broad instructional objectives for my one-semester elementary economics 101 course.

> By the end of the course students will be expected to (1) know the basic economic concepts, which means being able to define, recognize, and provide illustrations of them; (2) understand the relationships and linkages among the basic economic concepts, which means being able to identify the several concepts needed to understand and analyze different types of economic problems and to recognize these concepts in real-world examples; and (3) demonstrate an ability to analyze "cases," along the lines indicated by the Fels book.

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[3] For a recent effort to specify this, see W. Lee Hansen, G.L. Bach, James D. Calderwood, and Phillip Saunders, A Framework for Teaching Economics: Basic Concepts, (New York: Joint Council on Economic Education, 1977).

[4] See the chapter on instructional objectives by Saunders. For more information, see Benjamin S. Bloom, J. Thomas Hastings, and George F. Madaus, Handbook on Formative and Summative Evaluation of Student Learning, (New York: McGraw-Hill, 1971).

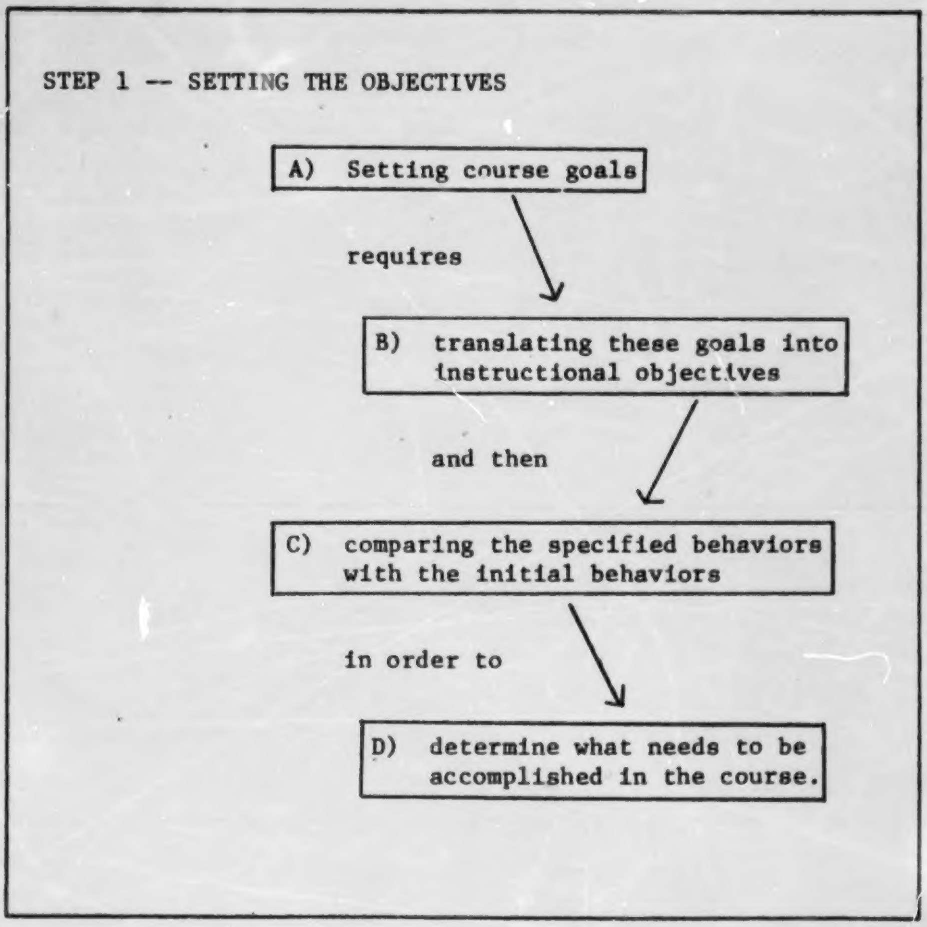
Achievement of these objectives depends on developing even more specific instructional objectives covering each component of the course and, in principle, each class meeting.

In a sense instructors do this unconsciously, just as they mentally weigh the costs and benefits of different economic decisions. There are two major advantages, however, in making the effort necessary to write them out and review them critically before proceeding any further with the course plan: (1) errors and omissions can be pinpointed more easily and clearly later on when an evaluation of the course occurs, in order to facilitate improvement, and (2) the explicitness of the objectives serves as a constant reminder to both students and teachers of what the course is all about as they make choices during the course itself. As E.M. Forster put it, "How can I know what I think until I see what I say?"

Specifying course objectives must necessarily take into account the extent to which the type of behavior indicated by the objectives have already been acquired before the course begins. The difference between desired behavior at the end of the course and initial pre-course behavior indicates the ideal of what must be done in the course--putting the focus where it belongs on knowledge and skills to be acquired during a course. Since the students in a class are not identical, the ideal is only attainable with individual instruction. Individual students vary not only in their entry-level behavior but also in their own desired exit-level behavior; so some combination of increments in knowledge and skills and the final level of achievement must be considered as the target.

We can diagram the elements of Step 1 as follows:

Figure 2


STEP 1 -- SETTING THE OBJECTIVES
A) Setting course goals
requires
B) translating these goals into instructional objectives
and then
C) comparing the specified behaviors with the initial behaviors
in order to
D) determine what needs to be accomplished in the course.

UNDERSTANDING THE OPPORTUNITIES AND CONSTRAINTS (STEP 2)

We must have some conception as to what is possible--the opportunities that exist for achieving our broad goals and sepcific objectives, as well as the constraints that limit these opportunities. This requires consideration of several elements preparatory to the next step 3 (course planning). I have chosen to highlight six--three of which focus on the institutional setting and three on the knowledge of the instructor.

The first of the institutional elements is the ability and interest of the instructors. Some instructors bring great ability and interest to their teaching; others bring little of either; and the vast majority probably bring modest amounts of one or both. The second institutional element is the ability and interst of the students who (as we have all learned) differ from class to class, from major to major, and from year to year. Getting to know something about the ability and interest of one's students is essential. Some quantitative information is available from class registration lists and course evaluation forms. Additional information can be obtained from instructor-designed questionnaires filled out by students on the first day of class. Other relevant information concerns the organization and operation of the department, college, division, and educational institution. Some have strict rules and customs which limit new approaches; others give faculty members fairly free reign in determining reading materials, class sizes, and teaching approaches. However flexible the institution's general policy cost considerations dictate that in most large courses we must utilize the lecture approach, with small weekly section meetings led by teaching assistants, for discussion and questions. Large size also virtually requires the use of multiple-choice exams, limits the assignments of material to what students must purchase, and reduces both in-class and informal student-faculty contact. (The small class of 25-30 is not subject to such constraints. It is thus a sad commentary on the lack of originality in economics teaching that the organization and teaching of small courses often differs little from the large ones.

The first element having to do with the knowledge of the instructor concerns the general state of knowledge about learning theory, pedagogy, testing, and the like. If little is known about learning theory, as might be deduced from the chapter on learning theory by Saunders, it may make little or no difference what approach one follows.[5] The second concerns the knowledge accumulated through research in economic education itself. Economists are beginning to make significant contributions to this literature.[6] Although some of this confirms what is contained in the general literature, other research either goes beyond the general literature or provides findings which are unique to economics. Hence, an acquaintance with this literature is important. The third concerns an understanding of the structure (content and skills) of economic knowledge and their connections to what is known about cognitive and affective learning. Little work has been done as yet to explore these connections.[7]

Figure 3 shows the relationship between Steps 1 and 2 with the feedback loop reflecting the interaction between these two steps.

PLANNING THE COURSE (STEP 3)

Here again I use the one-semester general economics course as my example. Such a course involves numerous different activities designed to help achieve course goals and objectives. Among these are lectures, weekly section meetings, examinations, written assignments, study of text materials, and review sessions. To bring all of these activities together in a meaningful way requires us to undertake the process of course planning--which involves making decisions on several sequences of questions.

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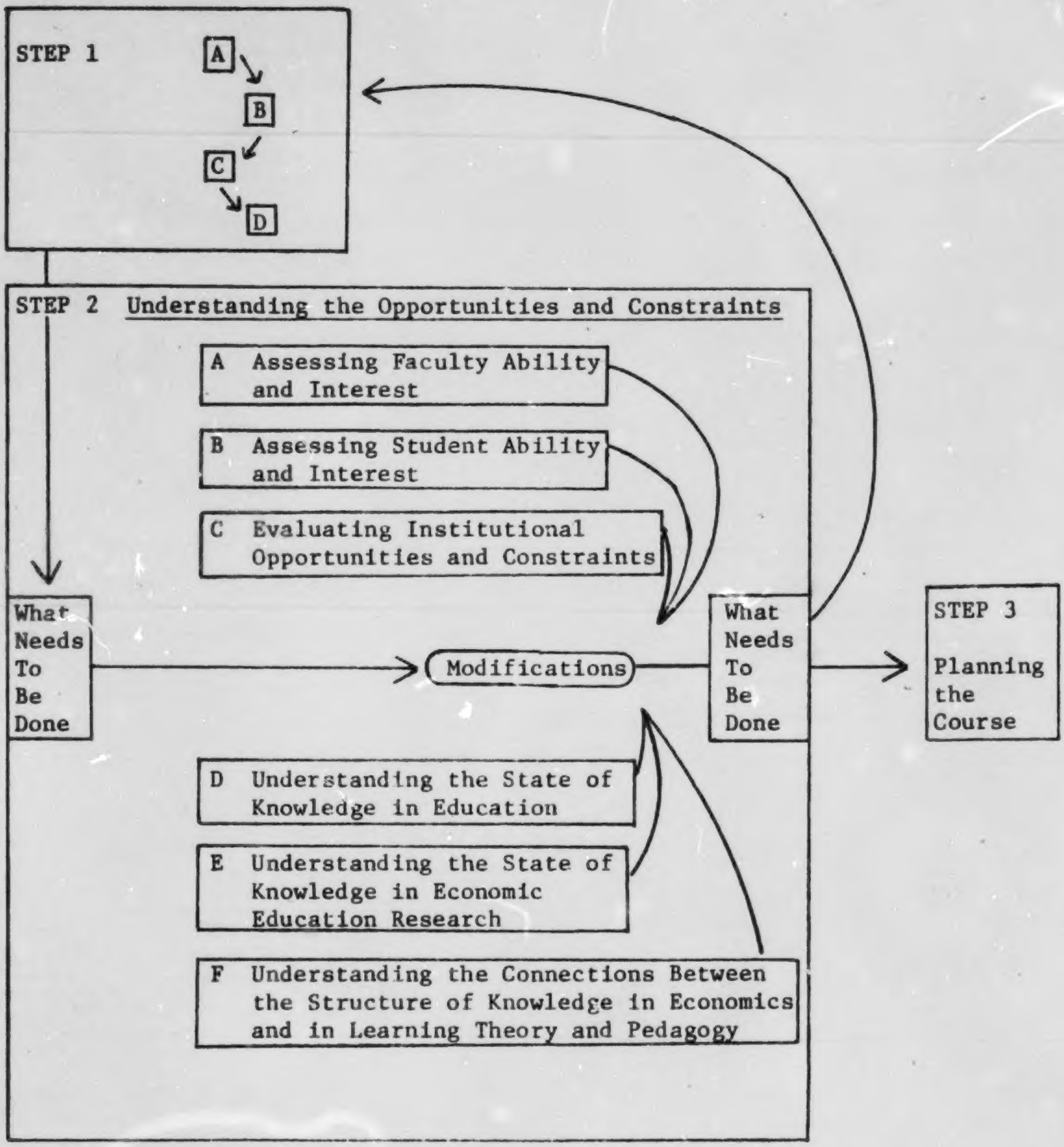
[5] See the chapter on learning theory by Saunders. For more information, see Robert L. Ebel (ed.), Encyclopedia of Educational Research, for the American Educational Research Association, (Toronto: Macmillan, 1969, 4th edition); and Robert M.W. Travers (ed.) Second Handbook of Research in Teaching, for the American Educational Research Association (Chicago: Rand McNally, 1973).

[6] Darrell R. Lewis and Charles C. Orvis, Research in Economic Education: A Review, Bibliography, and Abstracts (New York: Joint Council on Economic Education, 1971); also the Journal of Economic Education and the "Economic Education" papers in the annual Papers and Proceedings of the American Economic Review.

[7] For an initial effort in this direction, see W. Lee Hansen, et al., op. cit.

Figure 3


STEP 1
A
B
C
D
STEP 2 Understanding the Opportunities and Constraints
A Assessing Faculty Ability and Interest
B Assessing Student Ability and Interest
C Evaluating Institutional Opportunities and Constraints
What Needs To Be Done
Modifications
What Needs To Be Done
STEP 3 Planning the Course
D Understanding the State of Knowledge in Education
E Understanding the State of Knowledge in Economic Education Research
F Understanding the Connections Between the Structure of Knowledge in Economics and in Learning Theory and Pedagogy

We start with several questions about how to evaluate student learning:

1. What activities and instruments will be used to measure student achievement of the course objectives?[8]
2. What levels of performance on each of these activities and instruments will be required to demonstrate varying degrees of acceptable performance?
3. What weights should be given to the various activities in reaching an overall determination of the level and/or increment of student achievement?

Once decisions are made about what to evaluate, attention must be turned to questions about methods to measure student achievement.

1. How many and what kinds of exams are necessary?
   - -Coverage of text, readings, class discussion.
   - -Balance between objective and essay/short-answer questions.
   - -Types of objective questions: Recognition and understanding, simple application, complex application. (These are the categories used in the Test of Understanding College Economics.[9]
2. How many and what kinds of other assignments are needed?
   - -Writing assignments
   - -Analysis of "cases"
   - -Problem sets
   - -Other assignments
3. Will weekly survey quizzes help students assess their progress in the course? (This refers to TIPS surveys.[10])
   - -The number of surveys to administer.
   - -The use of other than objective questions in the surveys.
   - -The development of effective diagnostic material.

Having established our course objectives, we must decide what materials to select to assist students in their learning.

1. What texts shall we use?
   - -The way each helps achieve our objectives.
   - -Specific assignments and how they build upon each other.

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[8] See Robert L. Thorndike (ed.), Educational Measurement (Washington, D.C., American Council on Education, 2nd ed., 1971).

[9] See the discussion of TUCE in the chapters by Welsh.

[10] See Allen C. Kelley, "T.I.P.S. and Technical Change in Classroom Instruction," The American Economic Review, 62 (May 1972), 422-428.

2. What non-textbooks, such as Okun's Equality and Efficiency will best complement the regular texts?
3. Will a workbook that accompanies the textbook be helpful?
4. What kinds of material must be assembled for the reading packets (specially selected material compiled specifically for the course)?

   -Newspaper reports
   -Journal articles
   -Problem sets
5. What audio and videotapes are available to aid different kinds of students in their efforts to learn economics?

Having made these decisions, we must next decide how to structure the class time of the students.

1. What should be the format and content of the lectures?
2. What should be the format and content of the weekly section meetings?
3. What is the best way to make use of office hours?
4. Is there need for weekly or other review sessions?

Cutting across all these categories is the problem of what "teaching approach" to use. "Teaching approaches" is the term I use to characterize the particular orientation the instructor takes to the course. This is a more elusive problem, and cannot be dealt with simply in the form of questions to be answered.

At one level an instructor's teaching approach is reflected by the selection of the textbook; as Larry Leamer has demonstrated, texts vary considerably in their orientation.[11] As more and more publishers move to the practice of producing complete instructional packages (texts, readers, workbooks, question banks, audiotapes, and visual aids), the selection of a text can also involve a decision about which "complete package" of activities is best suited to achieving particular instructional objectives. In effect, instructors can select a packaged set of decisions already made.

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[11] Laurence E. Leamer, A Guide to the Selection of College Introductory Economics Textbooks, (Binghamton, N.W.: Economic Growth Institute, State University of New York, 1972, mimeo); also Laurence E. Leamer, "A Guide to College Introductory Economic Textbooks," Journal of Economic Education, Fall 1974, pp. 47-56.

Because they have found the standard treatments too restrictive and not in accordance with their course goals, we have witnessed in recent years, ever greater numbers of economist teachers who have set out to develop their own approaches. Experimental and innovative courses have grown apace.[12] Several approaches deserve brief mention. Still most prevalent is the survey course which tries to expose students to all of economics. But two other approaches have gained many adherents in the past few years. One is the "problems" or "current issues" approach,[13] another is the "case" approach which focuses less on economic content than on economics as a way of thinking.[14] Still other approaches view economics as revealed through literature, use the daily newspaper as an economics textbook, or trace the development of an idea through the research literature.[15]

The selection of one or another of these approaches will reflect the interests and comparative strengths of instructors, including their knowledge of the material, their desire to interact with students (little in lecture-survey courses, substantial in case-discussion courses), and their particular philosophy of education and teaching. Obviously, there is no single correct approach. Only after becoming acquainted with the different approaches and, perhaps, experimenting with them will it be possible to know which approach is most effective--for the instructor and for the students.

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[12] For a general description of these developments see W. Lee Hansen, "New Approaches to Teaching the Principles Course," American Economic Review (May 1975), pp. 434-437. For information on specific courses, see the Journal of Economic Education: Richard H. Leftwich and Ansel M. Sharp, "Syllabus for an 'Issues Approach' to Teaching Economic Principles," Special Issue No. 1 (Winter 1974); Rendigs Fels, "The Vanderbilt-JCEE Experimental Course in Elementary Economics," Special Issue No. 2 (Winter 1974); Barbara and Howard Tuckman, "Toward a More Effective Economic Principles Class," Special Issue No. 3 (Spring 1975); and Phillip Saunders, "Experimental Course Development in Introductory Economics at Indiana University," Special Issue No. 4 (Fall 1975).

[13] See Leftwich, Ibid.

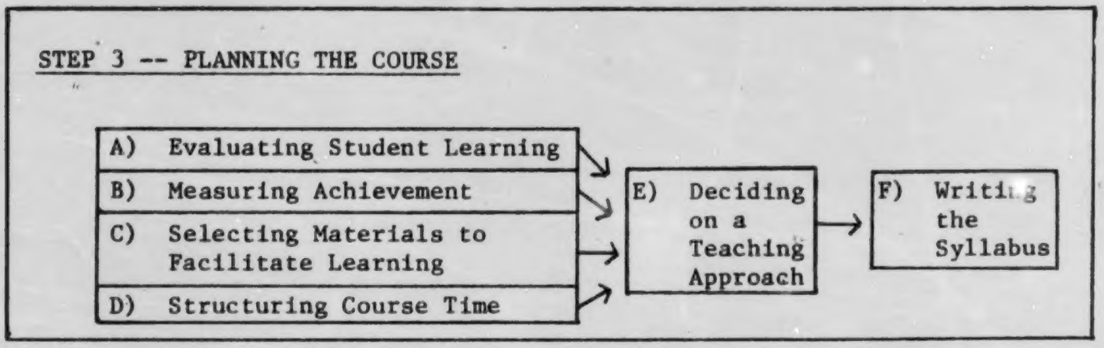
[14] See Fels and Uhler, Ibid.

[15] For a description of this type of course, though not in economics, see Herman T. Epstein, A Strategy for Education (New York: Oxford, 1970).

The distillation of these planning decisions appears when writing the course syllabus, which explains the content of the course. This encompasses the nature and schedule of the assignments, methods of assessing student achievement, grading standards, and the like. The more specific and detailed the syllabus, the more likely it is that students will know what to expect and how to organize their own efforts. A copy of the syllabus developed as a result of going through this procedure is provided in Appendix A.

Figure 4 spells out the various elements of Step 3.

Figure 4


STEP 3 -- PLANNING THE COURSE
A) Evaluating Student Learning
B) Measuring Achievement
C) Selecting Materials to Facilitate Learning
D) Structuring Course Time
E) Deciding on a Teaching Approach
F) Writing the Syllabus

TRAINING THE TEACHING ASSISTANTS (STEP 4)

Because many teaching assistants (TAs) are new to teaching, and because the experienced ones have usually been exposed only to traditional survey courses, it is essential to set up a training program. The subjects that should probably be covered in a training program for TAs who assist in the large lecture courses include the following:

- General orientation of the course.
- Section meetings and office hours: purpose, management, and role of TAs.
- The case approach and discussion-leading techniques.
- Preparation of examination questions.
- Development of weekly surveys (TIPS).
- Evaluation of student problem sets and writing assignments.
- Teaching evaluations and videotaping to improve teaching skills.
- Grading procedures.
- General tips on teaching.

We must ask ourselves how best to provide each type of training, what materials to use, and whether to provide this training prior to and/or during the course. (For more details see the chapter on Using the TTP Material.)

IMPLEMENTING THE COURSE (STEP 5)

Key elements in the implementation process are (1) a clear and complete syllabus, (2) regularly updated instructions to students about course activities, and (3) communication on weekly activities to TAs via memos and weekly meetings. In addition, there must be effective preparation and performance by faculty, TAs, and students, and every effort made to maintain a high level of motivation. Advance planning, for example, must be kept in mind to ensure adequate lead-time for exam preparation. All these items can be recast into a series of questions:

-What are the best methods for keeping students abreast of course activities? What are effective ways of keeping TAs informed of their responsibilities and their achievements?

-How do we ensure adequate and effective preparation of faculty? Of TAs? Of students?

-How do we assure completion of longer-run tasks, such as exam preparation and the development of problem sets? How do we work effectively with other groups (such as department secretaries and the campus testing office) to minimize administrative problems during the course?

Figure 5 summarizes these questions into four major points.

Figure 5

STEP 5 -- IMPLEMENTING THE COURSE

A. Maintaining Effective Communication with Students, Teaching Staff, and Support Personnel

B. Ensuring Adequate Preparation by Students and Teaching Staff

C. Stimulating Student Motivation

D. Ensuring Continuous Advanced Planning

EVALUATING THE COURSE (STEP 6)

Whether, and to what extent, a course is successful in achieving its objectives cannot be decided on the basis of casual impressions.[16] We need a systematic set of procedures for such an evaluation. At many institutions, much of the structure is already available through regular departmental or collegewide course evaluations. If not, instructors can administer their own evaluations, using questionnaires availabe in the general literature. (See chapter on Course Evaluation.) In addition, the cognitive achievement of students can be measured using instruments such as the Test of Understanding College Economics (TUCE)--with the achievement attributable to the course isolated by a system of pre- and post-testing. Followup studies can also be undertaken for those who are more ambitious, to learn more about the retention and subsequent ability of students to apply their knowledge and skills.

More important than evaluations that take place at the end of the course, however, is the need for systematic evaluation at regular intervals throughout our courses. To find out as much as we can, while they are going on about which particular segments of courses are most effective enables us to learn much more about how to improve the course than we can from overall course evaluations. The following questions emerge:

-What kind of information do we want to obtain about what students know, their personnal characteristics, and the like at the start of the course--so that we can observe changes in knowledge and behavior associated with the course?

-What kinds of on-going evaluation efforts do we want to implement?

-What kinds of end-of-course information do we want to obtain?

-What kinds of post-course information do we want to obtain?

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[16] For detailed information on evaluation procedures, see Scarvia B. Anderson; Samuel Ball, Richard T. Murphy and Associates, Encyclopedia of Educational Evaluation: Concepts and Techniques for Evaluating Education and Training Programs (San Francisco: Jossey Bass, 1975).

Figure 6 summarizes these four elements of evaluation:

Figure 6

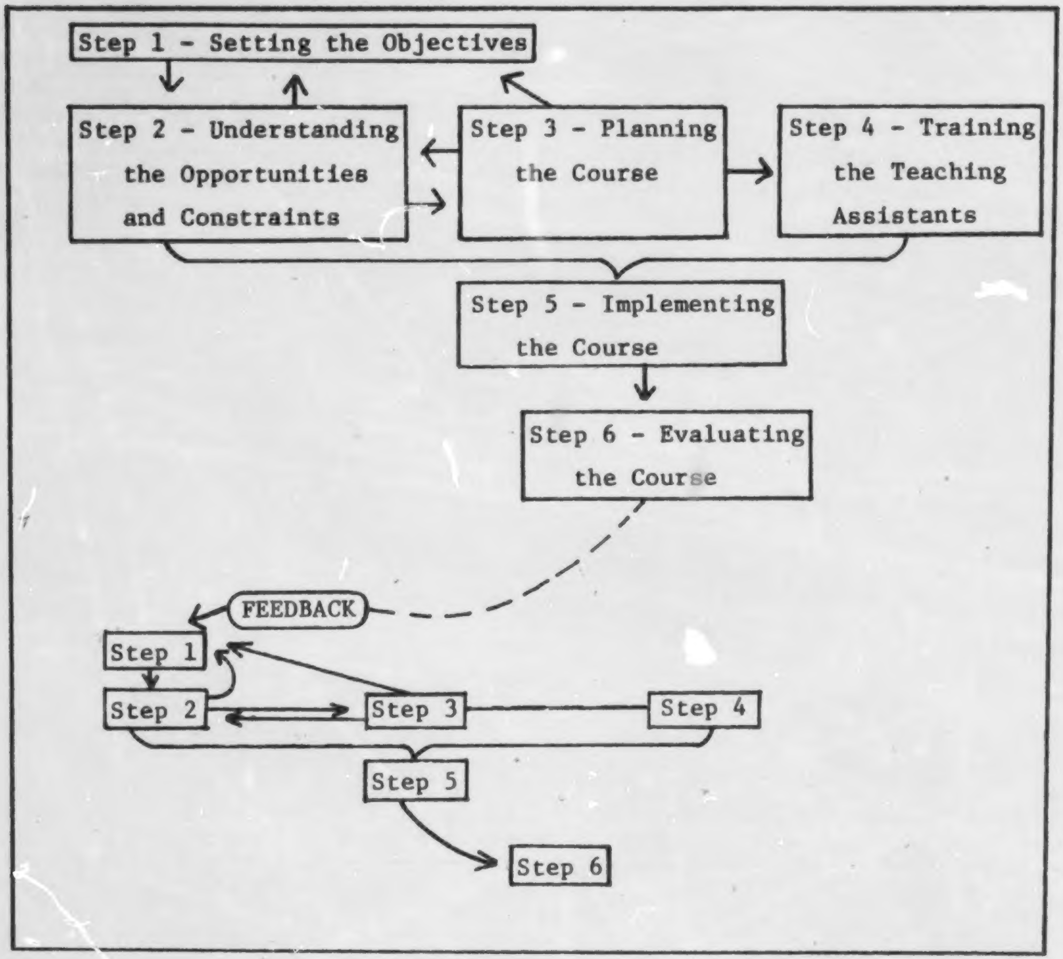
STEP 6 -- EVALUATING THE COURSE

A. On-going evaluation during course
B. End of course evaluations
C. Pre-post comparisons
D. Post course followups

THE COMPLETE SYSTEM

All six steps can now be brought together into a complete system for organizing a course. Not only does the succession of steps help ensure that all the relevant considerations are taken into account, but the evaluation process provides information that feeds back into the system and facilitates the making of informed decisions when an instructor teaches the course again or works to organize another course. The complete is portrayed in Figure 7.

Figure 7


Step 1 - Setting the Objectives
Step 2 - Understanding the Opportunities and Constraints
Step 3 - Planning the Course
Step 4 - Training the Teaching Assistants
Step 5 - Implementing the Course
Step 6 - Evaluating the Course
FEEDBACK
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6

CONCLUSION

The purpose of this chapter has been to present a comprehensive approach toward improving course development, implementation, and evaluation. This approach entails a host of decisions that start long before actual classroom teaching begins. Making the need for these decisions explicit increases the likelihood that the diverse activities and efforts devoted to economics courses can yield effective results--(1) in providing instructors with more substantial satisfaction from their major professional activity, (2) in improving student learning, (3) in helping instructors improve their teaching, and (4) in enhancing student learning in the future.

The major deterrent to the allocation of greater time, effort, and imagination to course organization and development is the lack of congruence between the costs and benefits as perceived by the instructor. The costs fall almost wholly on the instructor, while the benefits from increased learning accrue largely to students. The financial incentives for effective teaching remain weak.[17] The only benefit for the teachers, thus, are the increased psychic rewards that come through the pride and satisfaction they gained by doing a more effective job.

Even in this bleak landscape, several bright spots are emerging. The greater attention and rewards to teaching in recent years have worked to reduce somewhat the long-standing unfavorable benefit-cost calculation. In addition, the possibilities for undertaking publishable research on instructional effectiveness have increased with the establishment of the *Journal of Economic Education*, and with the scheduling of regular sessions on economic education at national and regional meetings of the professional economics associations. To the extent that we can continue, through efforts like this, to reduce the net costs to graduate students and younger faculty of developing their capacity to teach more effectively, the possibilities for stimulating greater craftmanship in economic teaching will continue to brighten.

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[17] See, for example, John J. Siegfried and Kenneth J. White, "Teaching and Publishing as Determinants of Academic Salaries," *Journal of Economic Education* 4, No. 2, (Spring 1973), pp. 90-99.

APPENDIX A

UNIVERSITY OF WISCONSIN
Madison, Wisconsin
Fall 1976

DEPARTMENT OF ECONOMICS
Professor W.L. Hansen
Professor J.D. Richardson

Economics 101

Course Outline

COURSE DESCRIPTION

Economics 101 is a one-semester course designed to expose students to the central ideas and approaches of economics. It will be organized using a "module" format. The course explores a variety of topics in economics using the basic concepts and tools of economic analysis in a "case" approach.

Honors credit is not offered in Economics 101. Students who want a more comprehensive and systematic treatment of the subject should enroll in Economics 103 or 104. These courses comprise a two-semester sequence on the Principles of Economics which is a requirement for Economics and Business majors.

COURSE STRUCTURE

The course is divided into several modules. The two Core Modules, lasting 4 weeks each, treat the basic elements of Micro and Macro Economics. The several Topical Modules, ranging from one to two weeks in length, are separate mini-courses developed around a collection of readings and a set of coordinated lectures. The Summary Module is intended to pull together main themes developed in the course. The schedule of module topics follows. A more detailed syllabus including specific assignments will be handed out at the beginning of each module.

Weeks	Type of Module	9:55 and 11:00 Lectures	Discussion Section
1-4	Core	Micro Hansen	Fels-Uhler Casebook
5-6	Topical	Education & the Labor Market Hansen	Readings packet
7	Topical	Applied Micro: Rent Control Hansen	Readings packet
8-11	Core	Macro Richardson	Fels-Uhler Casebook
12	Topical	Applied Macro: Election Issues Richardson	Readings packet
13-14	Topical	International Finance Richardson	Readings packet
15	Summary	Equality and Efficiency Hansen and Richardson	Okun book

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REQUIRED READINGS

Fels and Uhler, Casebook of Economic Problems and Policies
Sichel and Eckstein, Basic Economic Concepts: Microeconomics
Lindert, Prices, Jobs and Growth: An Introduction to Macroeconomics
Okun, Equality and Efficiency

These books can be purchased at the bookstore. In addition, Economics 101 Reading Packets, purchased through the Economics Department, will be available for the topical modules. Announcements will be made when these reading packets are ready.

ACTIVITIES

Lectures: There are three lecture meetings each week. The emphasis will be on introducing the major topics, on supplementing, clarifying, and expanding upon the basic reading assignments, and on presenting a variety of problems to illustrate the use of basic tools and concepts. To gain the greatest benefit from the lectures, you must complete the reading assignments before the lecture meetings. Because the lectures take up material not available in the readings, attendance is more important than it may be in other courses you have taken.

Discussion Sections: The discussion sections meet once a week. These sections, led by one of the teaching assistants, will analyze a variety of "case" studies; there will also be an opportunity to ask questions about the lectures and readings. Section leaders will evaluate students on the basis of their contribution to the section and the quality of the assignments they turn in. *Be sure to complete all assignments before each section meeting*. *Also, you must bring your casebook or reading packet to your section meeting* (see syllabus for each module for what to bring).

Exams: There are three exams scheduled during the semester, plus a two-part final exam which, though concentrating on the last several weeks of the course, covers the rest of the course. The exams will test the extent to which students understand the material and can apply it. On the Fridays following the return of exams, the exam committee will meet with students to go over the correct answers. Attendance at these sessions is optional. Time and location of those sessions will be announced in lecture.

There will be NO MAKE-UP EXAMS. Students who miss one of the first three exams and have a validated excuse will have the weight of the comprehensive portion of their final increased. Requests for validated excuses will be considered only upon written application to the Head T.A. If possible, such applications should be approved prior to the test. All applications must be made within seven (7) days of the missed exam.

The exam schedule follows.

Core Micro Module		Monday, October 4, 6:30 p.m.
Micro Topical Modules		Monday, October 25, in class
Core Macro Module		Tuesday, November 22, 6:30 p.m.
Final	A) Macro Topical Modules and Summary Module	As Scheduled in the Timetable
	B) Comprehensive	

Writing Assignments: Four short papers are assigned during the semester. Some will call for an analysis of a case, either from the Fels-Uhler Casebook or one supplied to you. Your papers should follow the Standard Operating Procedure described in Fels-Uhler. The papers will be evaluated for both their economic reasoning and writing quality. No papers will be accepted after the deadlines for turning them in.

Problem Sets: There are several assigned problem sets to ensure your grasp of important material. The problem sets will be distributed in lecture, and answer sheets will be distributed a week later. The problem sets will not be collected or graded, but they will be relevant to exams.

TIPS: About once a week the first ten minutes of the lecture period will be devoted to TIPS. As you enter you will pick up the TIPS questionnaires. Begin answering the questions immediately and then check your paper when the correct answers are given. These surveys are not to be turned in to your T.A. and do not count towards your grade. Use them to gauge your understanding of important concepts.

Audio Learning: For the first time, a set of audio cassette tapes about Economics are available for student listening in the Laboratory for Recorded Instruction (Van Hise). The tapes vary in difficulty, from programmed learning of the basic concepts to discussions of more complex issues by established economists. A list of tapes will accompany the assignment sheets for the micro and macro modules.

GRADES

The course grade is based on an average of the grades obtained on the first three exams, the two parts of the final exam, and the work done in your discussion section. The weights are as follows:

Core Micro Exam	20%
Micro Topical Exam	15%
Core Macro Exam	20%
Final A) Macro Topical and Summary 15% B) Comprehensive 10%	25%
Discussion Section (including writing assignments)	20%

OFFICE HOURS

Office hours of each teaching assistant will be announced during the first week of classes. Students are urged to see their teaching assistant for help at these times--this is part of the T.A.'s normal duties. Faculty members will also be available for consultation. Their regular office hours will be announced during the first week of classes.

RESOURCE CENTER

In case you miss a class or need an extra copy of one of the handouts, TIPS questionnaires, exams, and so forth, you should go to Room 7238 Social Science where all materials will be shelved after their distribution in lecture. Reminders of announcements made in lecture, as well as a complete list of T.A.'s, their section times, and office hours, will be posted outside Room 7238.

SUPPLEMENTARY ACTIVITIES

The "Sources in Economics" section below offers additional suggestions to help improve your comprehension of economics and to enable you to extend your knowledge beyond that covered in the course.

COURSE OBJECTIVES

In Economics 101, students will be shown how to think like economists. They should recognize economic problems and be able to identify what makes them "economic." Students are expected to interpret economic events in answering questions such as, "Why did this happen?" or "What would happen if...?"

Specifically, by the end of the course students will be expected to (1) know the basic economic concepts, which means being able to define, recognize, and provide illustrations of them; (2) understand the relationships and linkage among the basic economic concepts, which means being able to identify the several concepts needed to understand and analyze different types of economic problems and to recognize these concepts in real-world examples; and (3) demonstrate an ability to analyze "cases," along the lines indicated by the Fels book. The ultimate test is to be able to "make sense" out of contemporary economic issues, of the kind treated in newspapers, news magazines, and television and experienced as students, workers, consumers, and voters.

Sources in Economics

The study of economics involves more than listening to lectures and doing assignments. It also involves keeping abreast of current economic developments, knowing how to track down information about economic conditions, and familiarizing yourself with some of the major ideas that have been or are being discussed by economists.

To assist you, we have prepared the information below. If you need additional help about where to find things or what to read, please consult any of the participating faculty or teaching assistants. Later we'll suggest some paperbacks that will be of interest to you.

NEWSPAPERS, MAGAZINES, JOURNALS

General sources of information on economic issues and developments are the local newspapers, the New York Times and the Wall Street Journal. Both the NYT and WSJ have excellent coverage on many economic problems and issues.

The weekly news magazines also provide some but more limited coverage. Time has periodic reports by its Board of Economists; Newsweek features special columns by a pair of well-known, highly regarded economists, Paul Samuelson and Milton Friedman; and U.S. News and World Report often has excellent interviews with economist-policymakers. Without question, the best source of news and analysis of economic development is Business Week. Another source of excellent in-depth articles on American businesses is Fortune. The bimonthly Challenge ("A Magazine of Economic Affairs") contains well-written articles by well-known economists dealing with current problems and pitched for the general readers.

USEFUL GENERAL REFERENCES

To help find out more about what's going on in economics and where to get specific kinds of information, you can consult the following:

*Ralph Andreano, et al., The Student Economist's Handbook (Schenkman). This highly useful paperback volume is to aid students in conducting research in economics. Suggests where and how to track down data and other types of useful information needed to buttress the analysis of economic problems. Also, contains an excellent list of key references in economics.

*Nancy Ruggles, editor, Economics: The Behavioral and Social Science Survey, (Spectrum). Essays by well-known contemporary economists assess the current state of economics, what economists do, and the future of economics. Similar paperback volumes are available for Political Science, Sociology, Psychology, and other Social Science disciplines.

*Graham Bannock et al., The Penguin Dictionary of Economics (Penguin). Here is an inexpensive paperback which defines major terms and concepts used in economics.

*International Encyclopedia of Social Sciences. The new, second edition contains a wide array of excellent articles summarizing what is known on various social science topics, and it provides references to the most significant pieces of work. The first edition still continues to be useful. Students in all social science fields will find the Encyclopedia helpful. The articles on economics have been written by the best people in the field.

*Journal of Economic Literature. Published quarterly, this journal provides book reviews, listings of articles published in all major journals, and abstracts of all important articles in economic journals. Each issue of the journal regularly presents three or four survey articles. An excellent aid in finding out what economists are doing. After looking at this you may want to consult some of the economic journals, such as the American Economic Review, Journal of Political Economy, Quarterly Journal of Economics.

*President's Council of Economic Advisers, Economic Report of the President (U.S. Government Printing Office). An annual best seller (at least for college economics students) the CEA Annual Report issued every January offers a probing assessment of the economy -- where it's been, and what lies ahead in the coming year. The Appendix tables are extremely useful.

*Current Economic Indicators (U.S. Government Printing Office). This monthly publication presents up-to-date information on prices, employment, profits, national income, balance of payments, and so on. Prepared by the staff of President's Council on Economic Advisers.

*Statistical Abstract of the U.S. (U.S. Government Printing Office). Published annually, this 1000-page compendium provides data on a wide variety of economic subjects. Good index. Full citation of sources.

EXERCISE

Review Notes

1. State three important reasons for course development.

2. Calculate for your own course or a course you might teach the full resource costs it entails.

3. Write a brief description of the steps you follow in organizing your courses. If you have never organized a course, describe how one or more of your previous instructors appeared to develop a course you took.

4. Which of the steps presented in this paper would you be most interested in incorporating into your own course development and why?

5. Which of the steps would you be least interested in or inclined to incorporate into your course development and why?

6. Which of the steps do you think would be most difficult to implement and why?

Chapter 11

DEVELOPMENT AND EVALUATION OF TEACHING SKILLS THROUGH THE USE OF VIDEOTAPES*

NEEDS

There are very few instructors whose teaching effectiveness can not be improved through a system of effective feedback and constructive evaluation. Videotaping offers one means of providing such feedback and evaluation that is hard to duplicate in any other way.

GOALS

The goal of this chapter is to make you aware of one well developed system for using classroom videotapes to help instructors learn more about how they teach and how they might improve their teaching.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter, you will be able to:
   - a) describe the equipment and arrangements needed for the videotape evaluation process.
   - b) outline six steps necessary to get consistent results from video taping sessions.
   - c) operationally define each observable classification within the four coding categories on the Minnesota videotape review coding form.

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*This chapter is adapted from a fuller description of the complete Minnesota Graduate Student Instructor Training Program: see William E. Becker, Darrell R. Lewis, Charles Orvis, Raymond Riezman, and Michael D. Salemi, _A Training System for Graduate Student Instructors in Economics_, Center for Educational Development, University of Minnesota, Monograph 1, Fall 1975. An evaluation of the effectiveness of the Minnesota program has also been published: see D. R. Lewis, C. C. Orvis, "A Training System for Graduate Student Instructors in Introductory Economics at the University of Minnesota," _Journal of Economics Education_, 5 (Fall 1973), 33-46.

(Objectives continued)

d) state the three main parts of the Minnesota reviewing technique.

e) state what you believe to be the most important seven of the fourteen suggestions for handling the critique, and explain in your own words why you think that these suggestions are the most important.

2. After reading this chapter, and given the appropriate equipment and setting, you will be able to complete a trial implementation of a video analysis feedback session

AFFECTIVE OBJECTIVES

After carefully reading this chapter, it is the intention of the authors that you will:

1. Recognize the importance of confidentiality, a relaxed atmosphere, and a non-judgmental attitude when critiquing the teaching prowess of colleagues and graduate student instructors.
2. Set a good model by following the suggestions during the critiquing sessions.
3. Try to motivate the instructor while maintaining a sensitivity to the individual personality and style of the instructor.

OUTLINE OF MAIN POINTS

- Introduction
- Equipment and Arrangements
- Reviewing Classroom Performance
  - Coding
    - Method
    - Learning Objective
    - Verbal Expression
    - Non-Verbal Expression
  - Preparing the Summary
  - Preparing the Critique
- Handling the Critique

DEVELOPMENT AND EVALUATION OF TEACHING SKILLS THROUGH THE USE OF VIDEOTAPES

INTRODUCTION

For some years the Department of Economics at the University of Minnesota has maintained a teacher training program for its graduate students. The goal of the program has been to improve the pedagogical ability of new graduate student instructors (GSI's) who, as junior faculty in the Department, teach the introductory courses in economics. The GSI training program involves two types of staff and GSI interaction which are provided through seminar meetings and feedback sessions. In the seminar, the staff provides the GSI's with opportunities for coordination, discussion, and the learning of teaching skills. In the feedback sessions, the staff reinforces good teaching performance and provides GSI's with opportunities to assess their performance from the student's point of view. This chapter describes one part of the feedback process, the use of videotaping to help GSI's improve their teaching skills.

EQUIPMENT AND ARRANGEMENTS

The direct observation part of the feedback process requires the use of videotaping equipment. At the University of Minnesota a Sony AV-3600 recorder and AVR-TVC93A camera are used. This equipment is simple to operate and easy to set up and take down. After an hour of instruction and a few supervised tapings any responsible university student is capable of taping an instructor in the classroom. To get consistent results from the taping, however, it is not sufficient that the taper know only how to operate the equipment. She or he must also follow a taping procedure checklist. A checklist of things to do while taping typically includes the following:

(1) Set up equipment before the class starts;
(2) Make sure equipment is operating properly;
(3) Videotape everything written on the chalk board or overhead projector in closeup;
(4) Try to pick up anything unusual in the classroom;
(5) Get the students on camera when they speak; and
(6) Follow the instructor at all other times.

At Minnesota an undergraduate does all the actual taping while a junior faculty member does the reviewing and critiquing. The issue of whether the reviewer/critiquer should also do the taping is an open one. A reviewer/critiquer who tapes the class will observe the class first hand. On the other hand, the taping quality is sometimes better if the taper is solely concerned with following the outlined procedure.

The basic problem involved in arranging for classroom taping is one of coordination. The GSI must be notified in advance in order to be able to explain to the class what will transpire on the day of taping. If the students are not informed in advance, staff experience has shown that the presence of the camera and equipment will disturb them. This is true even though the video equipment is quiet and requires no extra lighting.

Picking a time to tape the class is not always easy. The chosen time must be satisfactory to both the person doing the taping and the instructor. The reviewer/critiquer should have some time available shortly thereafter; it is usually best to review and critique as soon after the taping as possible. It is also necessary to make sure that the class activity is appropriate--e.g., an exam time is not appropriate. Finally, before taping begins the instructor should have filled out the Daily Teaching Checklist shown as Table 1. This form simply requires the GSI to state, in an objective-setting approach, what will be taught and how it will be taught on the day of taping. As will be shown, this form provides valuable information for the reviewer/critiqer as well as for the instructor being taped.

It is worth noting that the reviewer/critiquer can reduce coordination problems by attending the weekly seminars. Since all GSI's are required to participate in the seminars, videotaping schedules can be arranged prior to or just after the seminar sessions.

REVIEWING CLASSROOM PERFORMANCE

Reviewing consists of three separate procedures: 1) coding on the Coding Form For Videotape Review; 2) filling out the Summary Checklist For Videotape Reviewing; and 3) preparing the critique.

Coding. The coding process requires the specially developed Coding Form shown in Table 2 and a device which will deliver beeps at 20 second intervals. On hearing the

TABLE 1

Daily Teaching Checklist

Date ______________

Instructions: The purpose of this instrument is two-fold. First, it is designed to help you apply the *objective-setting approach* to each class session, and is, consequently, an essential part of each class preparation. Second, cumulatively the checklists should give you a perspective on your teaching progress through the course, thus helping you in goal-setting and preparation for reteaching the course

At the Beginning of Session Preparation

1 What are the objectives for the session?

2 How are you planning to divide the class session?

- % time on review
- % time on today's objective(s)
- % time on summary and preview
- % time for knowledge of facts
- % time for theoretical concepts
- % time for exposition on theory
- % time for application of theory
- % specify: ______________

3. What is your teaching plan?

- % time you will spend lecturing
- % time you will spend discussing student-initiated questions
- % time you will spend discussing instructor-initiated questions
- % time you will spend on other activities
  Specify (and describe any experiment or new technique you intend to try) ______________

____

After Teaching the Session

1 Did you meet your objectives? Why or why not?

2 How well did your teaching plan work? Comments which may be helpful for you to recall later

____

TABLE 2

Coding Form for Videotape Review

Instructor ______________ Class: Econ. ______ Section ______ Tape No. 1 2 3

METHOD	LEARNING OBJECTIVES	EXPRESSIONS Verbal	EXPRESSIONS Nonverbal
(4) Discussion (Student Initiated)	(5) Complex Application	(5) Supportive	(5)
(3) Questions/Problems (from Instructor)	(4) Simple Application	(4) Receptive	(4)
(2) Lecture	(3) Exposition on Theory	(3) Neutral	(3)
(1) Other	(2) Theoretical Concepts	(2) Unreceptive	(2)
	(1) Knowledge of Facts	(1) Disapproving	(1)

			Expressions					Expressions	
#	Method	Objective	Verbal	Nonverbal	#	Method	Objective	Verbal	Nonverbal
001					034				
002					035				
003					036				
100					136				
101					137				
102					138				

beep, the reviewer/critiquer records on the coding form what is going on at that moment in the classroom. After doing this for the entire tape, one has a time series index of what methods were used, what type of learning was taking place, and what verbal and non-verbal expressions the instructor projected. This information serves two purposes. First, it is valuable information for the reviewer/critiquer to have for subsequent discussion. Second, it provides the instructor with a measure of what he or she did in the classroom to compare with what he or she planned, as recorded on the Daily Teaching Checklist which the instructor filled out before the taping. For example, an instructor who planned to lecture 25 percent of the time might not realize he or she actually lectured 75 percent of the time, until convinced by the coding data.

The reviewer's coding form currently used at Minnesota is an observation instrument specially adapted for this project. It is used by the reviewer/critiquer to get a judgmental measure of (a) the method employed by the instructor (discussion, questions/problems, lecture, other), (b) the learning objectives (complex application, simple application, exposition on theory, theoretical concepts, knowledge of facts), and (c) and (d) the verbal and nonverbal expressions (supportive, receptive, neutral, unreceptive, or disapproving).

The following operational definitions are used in coding:

a) Method

Discussion—If during the interval of observation the critiquer observes the teacher primarily listening to a student-initiated point or question and briefly responding to it, it is recorded as discussion (4).

Questions/Problems—If during the interval of observation the critiquer observes the teacher primarily asking questions to which he or she expects an immediate student response, it is recorded as questioning (3).

Lecture—If during the interval of observation the critiquer observes the teacher primarily "talking at" the student, it is recorded as lecturing (2).

Other—If during the observation period the critiquer observes the teacher doing such things as reading directly out of the text or watching a film with the class, the critiquer records "other" (1).

b) Learning Objectives

Complex application—The discussion, lecture, or questioning observed pertains to utilizing more than one economics principle or concept in analyzing a real world problem (5)

Simple application—The discussion, lecture, or questioning observed pertains to using a single economics principle or concept in analyzing real world or hypothetical problems (4)

Exposition on theory—The discussion, lecture, or questioning observed pertains to proofs, intuitive explanations, or analysis, of economic theory (3).

Theoretical concepts—The discussion, lecture, or questioning observed pertains to introducing and defining economic concepts such as comparative advantage, opportunity cost, or law of demand (2).

Knowledge of facts—The discussion, lecture, or questioning observed only pertains to institutional descriptions, dates, names, and the like (1).

c) Verbal Expressions

Supportive/Receptive—If in the process of lecturing, discussing, or questioning the instructor keeps students on task or reinforces student activity by positive verbal comments or by changing tone of voice, speed of talking, or diction, the instructor is recorded as being receptive. For example, while lecturing the instructor slows down to give students ample opportunity to take specific notes: while questioning students the instructor, through probing techniques, leads the students to the correct answer and then congratulates them for critical thinking. Receptive (5) or highly receptive (4) is used to indicate the degree of support expressed.

Neutral—The instructor is not observed to be changing speech patterns or verbal comments in any way which would tend either to support student activity or to belittle students (3)

Unreceptive/Disapproving—If in the process of lecturing, discussing, or questioning the instructor makes verbal comments which tend to belittle students or show disapproval for students' comments, the instructor is recorded as unreceptive (2) or highly unreceptive (1).

d) Non-Verbal Expression

Supportive/Receptive—If in the process of lecturing, discussing, or questioning the instructor attempts to keep students on task or to reinforce student behavior and comments by using changes in physical position or facial expressions, then he or she is recorded as being receptive. For example, while lecturing about a graph on the chalk board the instructor walks toward the board and points to the appropriate points on the graph; while students are discussing a given problem the instructor nods and smiles in agreement; while asking a question the instructor takes a step toward the student. Once again highly receptive (5) and receptive (4) are used to indicate degree of supportive instructor action.

Neutral—The instructor does not demonstrate any physical movement or facial expression which would tend to be supportive or discouraging to students (3).

Unreceptive/Disapproving—If in the process of lecturing, discussing, or questioning the instructor uses physical gestures, movements or facial expressions which tend to demonstrate lack of concern for students, or disapproval of a student's comment, the instructor is recorded as unreceptive (2) or highly unreceptive (1).

The coding form is segmented vertically by 20-second time intervals sequentially labeled 001, 002, 003, and so on, to 138. Upon receiving a 20-second beep, the reviewer records what the GSI is teaching. For instance, on the 34th beep (11 min. 20 sec. after the start of class on the videotape) assume the reviewer observes the GSI initiating questions based on a real world problem which involves using one economic principle to obtain a solution. In posing the question the GSI implies that even the "dumbest" student in class should know the answer. Assume also that the reviewer observes the GSI turn and face away from the student in posing the question. Using the operational definitions given above, the reviewer would record such an observation as follows

	Method	Objective	Expressions	
			Verbal	Nonverbal
034	3	4	1	1
035				
036				

The 3 under Method indicates that the instructor initiated the question or problem. The 4 for Objective indicates that the instructor is looking for a simple application of theory. Under the heading Expressions the two 1's reflect the fact that the instructor gave both nonverbal and verbal signs of strong disapproval and unreceptiveness to the students.[1]

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[1] A videotape demonstrating these alternative teaching methods, objectives, and expressions has been developed by members of the project and the Center staff. For more details, see the information on videotapes in this volume.

After reviewing the entire tape, the reviewer simply calculates the percentage of time the GSI spent in using different methods, objectives, and expressions.

Preparing the Summary. Filling out the Summary Checklist for Videotape Reviewing is a less formal and more subjective procedure than coding. As shown in Table 3 on p. 10 the Summary Checklist is divided into four categories--i.e., summary of videotape review coding data, exposition skills and physical characteristics, student-instructor interaction, and organization and objectives. As one goes down the checklist the categories become increasingly more subtle and difficult to correct. If it is an instructor's first taping episode, the reviewer/critiquer and the instructor should probably concentrate on Category 1; by the third taping, they will have dealt with Category II and III problems and they can concentrate on Category IV. The Summary Checklist actually has two purposes: first, it provides important data for preparing the critique, and second, a copy of the checklist can be given to the instructor for reference after the critiquing session.

Preparing the Critique. To prepare the critiquing session the reviewer/critiquer must first schedule a time when the GSI is free for at least two hours. Then all the data must be collected and synthesized--i.e., Coding Forms, Summary Checklist, GSI's Daily Teaching Checklist, student evaluations (if available), any data from previous tapings, and the tape itself. Using all this information the reviewer/critiquer must set objectives for the critique. These objectives will depend on the instructor and how many times that instructor has been taped. A list should be made of all the points to be made as well as when to stop the tape. At this point the critiquer is prepared.

HANDLING THE CRITIQUE

How a critique is actually conducted depends on the reviewer/critiquer and the instructor. It is a very subjective process and no formula exists for a successful critique. Following is a list of suggested principles which have proven helpful at Minnesota:

1. The reviewer/critiquer should try to establish a friendly, relaxed atmosphere.
2. The reviewer/critiquer should be non-judgmental. The purpose is to improve instructors, not judge them.

TABLE 7

Summary Checklist for Videotape Reviewing

I. *Summary of Videotape Review Coding Data*

Score	Method	Learning Objective	Verbal Expression	Nonverbal Expression
5				
4				
3				
2				
1				

II. *Exposition Skills and Physical Characteristics*

1. Eye Contact
2. Mannerisms
3. Voice (pitch, rate, volume, articulation)
4. Delivery in general
5. Use of blackboard (neatness, wise use of space)

III. *Student-Instructor Interaction*

1. Question techniques (open, closed, directed, reversed, relayed, rhetorical, thought-provoking, pause for answers, clear, preconceived)
2. Attitude projected (positive, negative or indifferent)
3. Motivation of the students

IV. *Organization and Objectives*

1. General structure of class
   (Introduction: provide reference for starting points;
   Sub-parts: summarized and referred to outline;
   Ending: summarized and projected to the next session)
2. Did the instructor meet the objectives he or she set?
3. Are the objectives of the class session consistent with the course goals?

3. The reviewer/critiquer's role is to make suggestions to the instructor, which may be adopted or disregarded.
4. The reviewer/critiquer should not try to change an instructor's style but instead work on improving that instructor's techniques and skills.
5. The reviewer/critiquer should follow good communication principles during the critique. It is quite unconvincing to explain to an instructor that eye contact is important while you stare at the ceiling.
6. The reviewer/critiquer should take personalities into account. Some people are more defensive than others, and the critiquer must be ready to adjust remarks accordingly.
7. The reviewer/critiquer should provide the instructor with motivation
8. The instructor should be encouraged to try to see himself or herself as the students do. Many valuable insights are obtained this way.
9. The reviewer/critiquer should make clear from the beginning what is expected from the instructor. Before the first critiquing the instructor must be notified that the Daily Checklist must be completed prior to the videotaping.
10. The reviewer/critiquer should make sure that there is an agreement as to what the GSI will work on and make a note of this for the next taping session.
11. The reviewer/critiquer should not try to do too much in one session; a critique of a one-hour class should be kept to about two or two-and-one-half hours.
12. Experience at Minnesota has indicated that at least three full videotaping episodes are necessary for most of the inexperienced GSI's in the program.
13. The reviewer/critiquer should attend the GSI seminars. Teaching skills learned in the seminars can be discussed and reinforced during the critique.
14. The videotaping and feedback process should be completely confidential. The instructor should have complete control over who sees his or her tape.

DO'S AND DON'TS

Do

Try to get the instructor to view himself as students do.

Focus on one or two main points in each critique session

Don't

Try to simply tape and view tapes in a half hearted, non-systematic manner.

Be judgmental.

Put too much in one critique session

Try to change an instructor's style (help him improve it!).

Limit the program to one or two sessions per instructor.

DEVELOPMENT AND EVALUATION OF TEACHING THROUGH THE USE OF VIDEOTAPES
Exercise 1

Review Notes

1. What equipment and arrangements are needed to implement the Minnesota videotape evaluation process?____

2. The three main parts of the Minnesota reviewing process are:

(1)____

(2)____

(3)____

3. The four major categories on the Minnesota Coding Form For Videotape Review are:

(1)____

(2)____

(3)____

(4)____

4. The four categories in coding teaching methods on the Minnesota Videotape Review Form are:

(1)____

(2)____

(3)____

(4)____

5. The five categories in coding learning objectives on the Minnesota Videotape Review Form are:

(1)____

(2)____

(3)____

(4)____

(5)____

6. The five categories in coding verbal expressions and non-verbal expressions on the Minnesota Videotape Review Form are:

(1)____

(2)____

(3)____

(4)____

(5)____

7. The seven most important suggestions for handling the critique aspect of the Minnesota reviewing procedure are: (be prepared to explain why each of these suggestions are important)

(1)____

(2)____

(3)____

(4)____

(5)____

(6)____

(7)____

Chapter 12

COURSE AND INSTRUCTOR EVALUATION

W. Lee Hansen

NEEDS

Teachers who want to improve their teaching are often searching for more effective methods of obtaining helpful comments and suggestions about their teaching. Students are usually reticient; colleagues and others rarely venture into your classroom; and the course-instructor evaluation systems that operate in many colleges and universities are not always specific enough to be much help.

GOALS

The goal of this chapter is to describe and comment on several methods for obtaining information and suggestions that can be of help in improving one's teaching. A variety of course-instructor evaluation forms is also included to help illustrate what can be done.

OBJECTIVES

COGNITIVE OBJECTIVES

After reading this chapter, you will be able to

1. identify three methods for augmenting information on your teaching performance.
2. list three advantages and disadvantages of each method.
3. identify three different types of course-instructor evaluation forms.

AFFECTIVE OBJECTIVES

After reading this chapter, you will be able to

1. value the importance of obtaining additional and timely information on your teaching performance.
2. develop your own supplementary questions and/or forms to obtain the kinds of information you want to have about your teaching.

3. make use of the three methods, as appropriate, in getting additional information that might be helpful in improving your teaching.

OUTLINE OF MAIN POINTS

Supplementary Evaluations

Videotaping

Help from Peers

Conclusion

Appendix: Sample Evaluation Forms

COURSE AND INSTRUCTOR EVALUATION

During the past few years the practice of requiring course and instructor evaluations has become widespread in American colleges and universities. Much attention has focussed on the use of these evaluations by departments in making salary promotions and tenure decisions and for students in deciding what courses to take. Less attention has been directed to how these and related evaluation instruments can provide useful information to help instructors improve their teaching and enhance the learning of their students.

A brief review of the course-instructor evaluation system will set the stage for our discussion. Typically departments, colleges and, in some cases, system-wide units decide to make comprehensive and regular evaluations of all courses and all instructors at the end of each semester. A questionnaire form is developed or an existing form is adapted to elicit the types of information deemed most useful. The format of the questionnaires requires multiple-choice answers that are amenable to machine tabulation. Often, some open-ended questions are also included. In some cases faculty can add special questions of their own. The responses to the objective questions are then tallied. The results of the objective questions and the student responses to the subjective questions are usually given to the instructor and to the Department chairman, and sometimes they are also available to other college officials and to students. In most cases some summary measure of the responses to one or a few questions are taken as overall indicators of instructor performance.

Interpretation of the evaluation results, however, is virtually nonexistent. They are simply returned to instructors who are then free to do what they wish with them. Instructors whose results are consistently high may at some time find themselves nominated for a teaching award. The vast bulk of instructors find themselves in the broad middle range of the scale and are recognized as doing a reasonably competent job. Instructors whose results are consistently low may, but rarely are, called upon to discuss their teaching with others who might be able to provide them with help. Thus, although course evaluation information is usually collected, it is of limited usefulness in stimulating the self-awareness and self-improvement that makes for improved teaching.

Even though most readers of this manual will have seen one or more end-of-course course-instructor evaluation forms, I thought it helpful to include a number of examples in the Appendix to this chapter to illustrate the great diversity of evaluation forms and the differing information they provide. As the forms clearly indicate, three categories of information are collected: an assessment of the course, an assessment of the instructor, and information on the characteristics of the student respondents. The rich body of information offers considerable potential for quantitative analysis by those who want to explore the interplay between the overall ratings on the one hand, and student, course, and instructor characteristics on the other. When this information can be combined with additional measures of student ability (SAT scores, for example) and student performance in the course (final grades), it becomes possible to estimate a variety of "production functions" of learning in economics. Obtaining these additional measures, of course, requires the development of a method of identifying the respondents without compromising their willingness to give responses that reflect their true views.

Instructors, on receiving their evaluation results, frequently find the written comments more illuminating than the quantitative indicators of their performance in specific areas (such as quality of the lectures or the extent to which the exams measure student knowledge). This is because the objective questions do not explain why students responded as they did while the open-ended answers provide an opportunity for gaining insight into the motivations behind the responses.

Various other methods to augment the information provided by student evaluations also exist. One is to employ supplementary evaluation forms. Another is to view a videotape of one's own classroom performance. A third is to seek the help of a peer who can perhaps offer useful suggestions. Each of these suggestions is discussed below.

SUPPLEMENTARY EVALUATIONS

The typical institutional course evaluation occurs at or near the end of the course when it is too late to correct any apparent deficiencies noted by students in the course. The assumption, however, is that with the start of a new semester some improvement can perhaps be achieved. But again, no official information about whether any improvement actually occurs can be obtained until yet another semester has elapsed. Instructors should be encouraged to fill this gap by undertaking their own supplementary evaluations early during the semester so that they can, if they wish, make what seem to be needed and reasonable improvements.

Two of the examples in the Appendix are of mid-term student evaluation forms. These forms or variations on them can elicit information that may be helpful in adjusting one's teaching and instructional practices. Particularly for beginning instructors who have no track record, mid-term evaluations can be especially helpful in correcting some of the more obvious deficiencies. An additional benefit comes from the possibility that improvements made early in the semester will result in better evaluations at the end of the semester. To the extent that students enjoy the course more and learn more as a result--provided the costs of making certain changes do not outweigh the benefits--our economic calculus would suggest making the change. Ordinarily, there is no way of estimating precisely what the benefits or costs will be. But to the extent that new instructors are working in the dark and do know that their teaching will be closely scrutinized, obtaining early feedback and considering making appropriate modifications is more than likely to pay off.

Whether or not a mid-term evaluation is used, instructors may want to undertake their own self-evaluation. (Several examples of these self-evaluation forms are also included in the Appendix.) They require that the instructors answer essentially the same kinds of questions as are answered by the students. What is useful about this approach, aside from forcing the instructors to look objectively at their efforts, is that the results can be compared with those from the student evaluations and any disparities noted. What instructors think they may be doing with considerable skill may not receive similar marks from students, and vice versa. Just because there is a disparity does not necessarily mean that the faculty members should adjust to the behavior suggested by their students. But disparities do help identify areas of potential change and improvement.

A persistent criticism of student course-instructor evaluations is that the anonymity of the respondents encourages unfair comments and hides the failure of some students to meet the instructor and course material at least half-way. Thus, the responses may tell more about the students than the course or instructor. There are two ways to handle this. One is to make sure that the end-of-course evaluations contain questions asking about the treatment of specific topics in the course; this can be done by adding appropriate questions to the forms. Another is to ask specifically about the extent of student effort in the course; obviously, the answers may be difficult to interpret but they do reflect a concern to look at what students are doing too. A third approach is to obtain more information about the characteristics of the students at the beginning of the semester; such information may help pitch the material at the proper level and take advantage of some of the resources in the class. Thus, information can be obtained through a start-of-the-term student questionnaire. The example included here is rather elaborate, but it has the virtue of suggesting a variety of types of information that might be useful to an instructor. For many instructors a much abbreviated questionnaire would be adequate.

There are, in short, numerous ways of supplementing the regular evaluations by using additional evaluation instruments. The cost of administering these other instruments cannot, of course, be ignored; not only must the questionnaire be obtained or devised and printed, but class time is required for students to fill out the forms. This suggests the need for limiting the number of questions to obtaining only that information which will be useful rather than a mass of information that might be "interesting" to possess. It also suggests the possibility of sampling a small group of students rather than the entire class, particularly in large courses.

VIDEOTAPING

Perhaps the most effective way of getting a student's eye view of your teaching is to have a class videotaped and replayed later for your viewing. Most people find the experience an interesting and valuable one, and considerably less threatening than they may have expected. Much can be gained from watching a videotape of your teaching. Some obvious and distracting mannerisms may be spotted; a better sense of one's speaking pace and diction can emerge; eye contact can be checked; blackboard techniques can be studied; and so forth. Many colleges and universities now have portable videotape equipment that can be brought into classrooms to do the videotaping. In other cases, the class may have to meet in a specially equipped room when the videotaping is done. Most people find it preferable to have the videotape equipment brought to their classroom so as to avoid the disruption associated with teaching in an unfamiliar room. But even so, videotaping the class can create problems. Occasionally, students freeze up when a class session is videotaped. Usually, however, they quickly forget that the taping is going on, especially if the equipment is situated in a back corner of the room and out of most students' view. To the extent that the videotaping can be done conveniently, it is probably best to have several tapings during a semester--both to capture the various forms of teaching (lecture, discussion, etc.) and to pick up changes that may be observable over a semester.

It is sometimes also useful, rather than relying on your own diagnosis, to ask a colleague who is concerned with good teaching to view the tape with you and offer suggestions. Alternatively, there may be other experts on campus who are available and can be prevailed upon to critique your tape. Finally, there are systematic feedback processes such as that described in the chapter on the Minnesota videotaping evaluation system.

HELP FROM PEERS

A third possibility, valuable but often difficult to pursue, is to seek help from an understanding colleague whom you know as non-threatening. This can be done by asking for help with some teaching problem, prevailing upon a colleague to observe one of your classes, or seeking out other assistance that might be available on your campus. There may be a roster of experienced, expert teachers who can serve in this capacity, or there may be a teaching center that provides this type of service. The advantage of seeking help from others is the opportunity it creates to develop a continuing discussion of teaching that can be highly rewarding. Clearly, it pays to search out someone who is known as a good teacher and who is concerned with the quality of his own teaching. Such a person is far more able and likely to offer helpful advice and counsel than a colleague picked at random, and such a person will be much less threatening than a typical department chairman.

The more specific your questions, the more likely it is that peer help will prove useful. "How well is my material organized and how might the organization be improved?" "How effective am I in posing answerable questions and obtaining responses from a variety of my students?" "Do I speak slowly and clearly enough, and with enough variation to permit students to understand me and yet not be lulled to sleep or day dreaming?" These are far more useful in provoking responsesthat mean something than requests for a general evaluation.

CONCLUSION

Three approaches to course and instructor evaluation have been sketched out here. The first involves using supplementary evaluation forms to obtain additional information on one's teaching performance; the second provides another "student view" of your teaching, as seen through a videotape of your classroom activities; the third involves the use of colleagues to provide suggestions and help. None of these avenues of help should be neglected, because they can all make effective contributions to improving one's teaching skills.

EXERCISES

1. Obtain the course-instructor evaluation form used at your institution and compare it with the forms included in the Appendix. What are the most significant differences between your form and one of those included here?
2. Prepare a mid-term evaluation form that you believe would elicit useful information about your course and your teaching as of, say, the fifth week of the semester.
3. How would your own personally designed end-of-term evaluation form differ from the mid-term form you designed in (2) above? Why?
4. Design an instructor self-evaluation form that could be used in conjunction with your institution's course-instructor form for students.

APPENDIX

As noted in the text, a variety of course evaluation instruments has been assembled to show the range of forms in use. None of these forms is necessarily recommended; in fact, many of the forms are far too long in light of their intended use. A more limited range of objective questions can usually capture the flavor of courses and instructors, supplemented with open-ended questions to yield specific comments and suggestions. If not helpful as indications of how one's teaching can be improved, such comments offer interesting insights into the nature of one's students.

The various forms are listed first and then a few comments on the forms are offered (the forms themselves follow this discussion).

I. End of Course Student Evaluation Forms
    1. Indiana University, Introductory Economics
    2. University of Minnesota
    3. Educational Testing Service

II. End of Course Faculty Evaluation Form
    1. Educational Testing Service

III. Mid-Term Student Evaluation Form
    1. Educational Testing Service
    2. University of Minnesota

IV. Start of Course Student Information Form
    1. University of Minnesota

Form I.1 has been designed for a specific course and reflects the questions that the teaching staff of the course wants to obtain for that particular year. This form embraces a wide range of questions in the objective sections; it wisely and correctly emphasizes constructive comments in the open-ended questions; and it does this by focusing attention on the most important suggestion for improvement. The University of Minnesota and the Educational Testing Service Forms (I.2-3) both try to get at essentially the same matters. Only the Minnesota form (the Supplementary Form) allows for open-ended responses.

Form II.1 is unique because it is correlated with the form I.3 for students. This permits the identification of disparities in the views of students and that of the instructor. If you are at an institution which has a different form from the one shown here, there is no reason why you could not develop a form parallel to it for your self evaluation and subsequent comparison with the results of the student evaluation.

Forms III.1 and III.2 illustrate what can be done to obtain early student reactions to an instructor's teaching. Elaborate forms such as these are not required; much useful information can be obtained by simply asking students to give their suggestions on a blank sheet of paper provided to them. Please note that, to preserve anonymity, it may be important to have the comments typed by the secretarial staff.

The final form (IV.1) offers interesting possibilities for obtaining benchmark data on students, their abilities, and their expectations. Other information useful in evaluating the impact of a course on students can also be obtained through such questionnaires.

Note on use of Form I.1 Indiana University

A standardized course and instructor evaluation form is administered in all sections of E103 and E104 each semester by a trained "outsider" when the instructor is not in the room. The directions encourage complete candor, student anonymity is assured, and special efforts are made to get a high response rate. In selecting questions for the instructor evaluation part of the questionnaire (Questions #7-25), we consciously sought to omit questions that deal only with popularity or personality, and we tried to include only questions that psychological theory indicates are associated with student learning. By limiting questions to various aspects of observable instructor behavior, we hoped that low ratings might give an instructor specific information on how he or she might improve his or her performance. In designing our evaluation questionnaire we also avoided a format that permits students to simply mark a standard response on a single sheet. We have tried to force students to read and answer each item separately, and space is provided for written comments on each question.

For twelve consecutive semesters sophisticated statistical analyses have been employed to compare an instructor's student ratings with the performance of his or her students on a common multiple choice part of the final exam while holding the influence of other variables constant. These studies have found a positive and statistically significant association between student exam performance and an instructor's ratings on the following eight questions: #7, #9, #10, #13, #14, #17, #20, and #26. For more information see: Phillip Saunders, "Experimental Course Development in Introductory Economics at Indiana University", Journal of Economic Education, Special Issue No. 4, Fall 1977, pp. 16-17.

E103 COURSE AND INSTRUCTOR EVALUATION

This evaluation is to be completely anonymous. Do not put your name anywhere. Your instructor will not be given this evaluation and comment sheet until after it has been studied by our course evaluators, and not until after all grades have been turned in for this course.

So that your responses can be compared with other information such as your final course grade, however, you should indicate your student number in the space provided on the separate answer sheet. Your instructor will never see the separate answer sheet, it will eventually be destroyed, and your complete anonymity is assured.

Please take your time and answer each question carefully. In addition to marking your response in pencil on the separate answer sheet, add as many comments as you wish on this evaluation form. Our evaluators will consider carefully any criticisms or compliments you care to make. If you do not have enough time to write all of the comments you want, you are urged to write a letter directly to the "Chairman, Department of Economics." These evaluations will be used in course and teaching assignments, correction of course and teaching "problems," and nominations for teaching awards.

In marking responses on the separate answer sheet, follow the directions below and use a pencil. Do not use a pen.

Student Information

- Put your student number in the appropriate part of the answer sheet.
- Note the section I.D. number written on the blackboard, and put this number in spaces 1-4 in front of where you put your sex and student number.

Answer the remaining questions below and in Part I of the separate answer sheet. Note the number before each question below, read the question carefully, circle your response on this form, and blacken in the appropriate space on the separate answer sheet.

1. This section of E103, Introductory Economics, carries the subtitle that is written on the blackboard. Were you aware of this subtitle when you enrolled in this section of the course?

   A. Yes
   B. No

2. Are you taking this course on a required or an elective basis?

   A. Required
   B. Elective

3. Please indicate what grade you now reasonably expect to receive in this course:

   A. A
   B. B
   C. C
   D. D
   E. F

4. What was your attitude toward the subject matter of this course at the beginning of the semester?

   A. Very interested
   B. Slightly interested
   C. Neither interested nor disinterested
   D. Slightly uninterested
   E. Very uninterested

5. Your attitude toward the subject matter of the course, now, at the end of the semester is

   A. Very interested
   B. Slightly interested
   C. Neither interested nor uninterested
   D. Slightly uninterested
   E. Very uninterested

6. Knowing what you now know, and if you had it to do all over again, would you elect to take this course if it was not a required course?

   A. Definitely
   B. Probably
   C. Not sure
   D. Probably not
   E. Definitely not

Instructor Evaluation

The next 22 statements (#7-28) are about your instructor. In most cases you are asked to indicate whether you (A) Strongly Agree, (B) Agree, (C) Neither Agree or Disagree, (D) Disagree, (E) Strongly Disagree. Note the number before each statement below, read the statement carefully, circle your response on this sheet, and blacken in the appropriate space on the separate answer sheet. Feel free to add any comments you wish on this sheet. Please make a special effort to comment in the space following question #28.

7. The instructor seemed very enthusiastic about teaching this course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

8. The instructor's attitude toward students was sympathetic and helpful. He (or she) seemed genuinely concerned that the student understand the subject matter in the course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

9. The instructor made the objectives and purposes of the course and individual assignments very clear. I always knew what was expected of me.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

10. The homework, exams, and quizzes seemed clearly aimed at major learning objectives, and did not get bogged down in trivial points or minor details.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

11. The homework, exams, and quizzes were graded and returned promptly.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

12. The homework, exams, and quizzes were graded fairly and impartially.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

13. The feedback on homework, exams, and quizzes was very good, and enabled me to understand clearly how well I was doing in the course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

14. The instructor took his teaching seriously and was always well prepared for regular class meetings.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

15. The instructor seemed to pitch the course to the better students, and tended to go too fast for the majority.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

16. The instructor seemed to pitch the course to the poorer students, and tended to go too slowly for the majority.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

17. The instructor's voice and speaking ability made it easy to understand what was being said in class.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

18. The instructor was free from distracting or annoying personal mannerisms that made learning more difficult.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

19 The instructor provided ample opportunity to discuss and raise questions about materials presented in class.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

20. In explaining difficult points, the instructor was able to go beyond the textbook and supply useful examples and applications.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

21. The instructor seemed to encourage and value reasonable disagreements about points raised in class.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

22. The instructor made effective use of the blackboard in emphasizing and explaining key points.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

23. The instructor's presentations could have been improved with the use of an overhead projector, simulation games, movies, and/or other teaching aids.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

24. The instructor made himself available for out-of-class consultation and discussion.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

25. The instructor so aroused my interest that I was inspired to investigate the subject beyond the formal course requirements.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

26. In terms of overall teaching effectiveness, and compared to other introductory course instructors you have had at I.U., how would you rate your instructor in this course?

Comments

A. One of the very best
B. Above average
C. Average
D. Below average
E. One of the very worst

27. If you had another chance to get this instructor in another course, would you

A. Try hard to get into his/her section
B. Be pleased to have him/her again, but would not seek him/her out
C. Not care one way or the other
D. Rather not have him/her again
E. Try hard to change sections (if assigned to him/her)

PLEASE COMMENT 28. What one thing could your instructor do to most improve his/her effectiveness as a teacher? PLEASE COMMENT

Course Evaluation

The next 12 statements (#29-40) are about the course. In most cases, you are asked to indicate whether you (A) Strongly Agree. (B) Agree, (C) Neither Agree or Disagree, (D) Disagree, (E) Strongly Disagree. Note the number before each statement below, read the statement carefully, circle your response on this sheet, and blacken in the appropriate space on the separate answer sheet.

If you have no basis for an opinion, DO NOT CIRCLE any response and leave the appropriate space on the separate answer sheet blank.

Feel free to add any comments you wish on this sheet. Please make a special effort to comment in the space following question #40.

29. The subject matter of this course is important and relevant in today's world.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

30. The subject matter of this course is intellectually challenging.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

31. The topics covered in this course seemed well-organized and integrated.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

32 The size of this class was appropriate for this type of course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

33. The classroom facilities for this class were appropriate for this type of course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

34. The textbook provided a substantial contribution to what I learned from this course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

35. The required readings (other than the principal textbook) provided a substantial contribution to what I learned in this course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

36. I feel that I learned a lot from this course.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

37. As a result of my experience in this course, I would like to take additional courses in economics.

Comments

A. Strongly Agree
B. Agree
C. Neither Agree or Disagree
D. Disagree
E. Strongly Disagree

38. Compared to textbooks you have used in other introductory courses at I.U., how would you rate the textbook in this course?

Comments

A. One of the very best
B. Above average
C. Average
D. Below average
E. One of the very worst

39. Compared to required readings (other than the principal textbook) you have used in other introductory courses at I.U., how would you rate the required readings in this course?

Comments

A. Some of the very best
B. Above average
C. Average
D. Below average
E. Some of the very worst

40. What one thing could be done to most improve the effectiveness of this course?

PLEASE COMMENT

PLEASE COMMENT

Form I.2 University of Minnesota

student evaluation of instruction

part I: student evaluation form

university measurement services center
9 clarence avenue s.e. minneapolis, minnesota 55414

Instructor ________________

Course ________________

Quarter & Year ________________

LISTED BELOW ARE A NUMBER OF ITEMS DESCRIBING INSTRUCTOR BEHAVIOR.

Each item contains TWO PARTS. BOTH parts must be answered.

FREQUENCY OF OCCURENCE

Indicate the frequency of occurence of each behavior by circling the number of the appropriate alternative.

IMPORTANCE

Indicate the importance of this behavior to you as it relates to the course being evaluated. Circle the number of the appropriate alternative.

The Instructor:	Never	Rarely	Sometimes	Usually	Always	column		Not Important	Slightly Important	Important	Very Important	Extremely Important
1. Is concerned about the effectiveness of his teaching.	1	2	3	4	5	1	2	1	2	3	4	5
2. Is genuinely interested in students.	1	2	3	4	5			1	2	3	4	5
3. Is well informed on the material presented.	1	2	3	4	5	5	6	1	2	3	4	5
4. Clearly indicates what material tests will cover.	1	2	3	4	5			1	2	3	4	5
5. Stimulates curiosity about the subject matter	1	2	3	4	5	9	10	1	2	3	4	5
6. Has an interesting style of presentation.	1	2	3	4	5			1	2	3	4	5
7. Organizes his lectures well.	1	2	3	4	5			1	2	3	4	5
8. Clearly interprets abstract ideas and theories.	1	2	3	4	5	15	16	1	2	3	4	5
9. Attempts to stimulate creative abilities.	1	2	3	4	5			1	2	3	4	5
10. Keeps the course moving rapidly enough for the material.	1	2	3	4	5	19	20	1	2	3	4	5
11. Makes good use of examples and illustrations.	1	2	3	4	5			1	2	3	4	5
12. Relates the material of this course with other areas of knowledge.	1	2	3	4	5			1	2	3	4	5
13. Presents or allows various points of view.	1	2	3	4	5	25	26	1	2	3	4	5
14. Discusses recent developments in the field.	1	2	3	4	5			1	2	3	4	5
15. Is aware when students are having difficulty in understanding a topic.	1	2	3	4	5	29	30	1	2	3	4	5
16. Makes it clear how each topic fits into the course.	1	2	3	4	5			1	2	3	4	5
17. Gives explanations which are clear and to the point	1	2	3	4	5			1	2	3	4	5
18. Welcomes questions from students.	1	2	3	4	5	35	36	1	2	3	4	5
19. Is available for individual help.	1	2	3	4	5			1	2	3	4	5

(over)

The Instructor:

	FREQUENCY OF OCCURRENCE							IMPORTANCE				
	Never	Rarely	Sometimes	Usually	Always	column		Not Important	Slightly Important	Important	Very Important	Extremely Important
20. Clearly defines student responsibilities in the course.	1	2	3	4	5	39	40	1	2	3	4	5
21. Demands a reasonable amount of work.	1	2	3	4	5			1	2	3	4	5
22. Invites criticism of his own ideas.	1	2	3	4	5			1	2	3	4	5
23. Is enthusiastic about his subject.	1	2	3	4	5	45	46	1	2	3	4	5
24. Is humorous at appropriate times.	1	2	3	4	5			1	2	3	4	5
25. Gives adequate information during the course regarding student progress through quizzes, tests or other feedback.	1	2	3	4	5	49	50	1	2	3	4	5
26. Encourages class discussion.	1	2	3	4	5			1	2	3	4	5

Please use items 27 through 31 for responding to any items specially developed by the instructor.

27. ______________________	1	2	3	4	5			1	2	3	4	5
28. ______________________	1	2	3	4	5	55	56	1	2	3	4	5
29. ______________________	1	2	3	4	5			1	2	3	4	5
30. ______________________	1	2	3	4	5	59	60	1	2	3	4	5
31. ______________________	1	2	3	4	5			1	2	3	4	5

FOR ITEMS 32 THROUGH 38, Please circle the number of the appropriate response. Circle only one number for each item.

32. What is the overall value of this course to you?

Not Valuable	Slightly Valuable	Valuable	Very Valuable	Extremely Valuable	column
1	2	3	4	5	63

33. Which sex are you? 64

1. Male
2. Female

34. Which of the following apply to you? 65

1. Freshman
2. Sophomore
3. Junior
4. Senior
5. Graduate Student
6. Adult Special
7. Other

35. What is your overall cumulative grade point average (GPA)? 66

1. 1.99 or less
2. 2.00 - 2.50
3. 2.51 - 2.99
4. 3.00 - 3.50
5. 3.51 - 4.00

36. What grade do you expect to get in this course? 67

1. A
2. B(S)
3. C
4. D
5. F(U)
6. P
7. N
8. Audit
9. Other (please specify)______________

37. Is this course within your major program? 68

1. Yes
2. No

38. Is this course required or optional? 69

1. Required
2. Optional

Form 1.2 (Supplement)

STUDENT OPINION SURVEY

This questionnaire gives you an opportunity to evaluate this course in your own words and to offer recommendations for its improvement. Please be frank, specific, and constructive.

Course ____________

Instructor ____________

Quarter & Year ____________

SUPPLEMENT

measurement services center
9 clarence avenue s e minneapolis minnesota 55414

1. Please describe yourself in order to give your instructor an idea of your point of view:

Major ____________ GPA ____________

Year in School ________ Grading Option: A-N S-N Other

Vocational/Educational Plans: ____________

____

2. For what reasons did you take this course?

→

3. How much and in what ways do you feel this course has contributed to your education?

4. Please comment on the following characteristics of the instructor as they enhanced or detracted from the course:

His/her grasp of the material

Communication skills

Attitudes toward students

5. What things about this course or instructor particularly heightened or diminished your motivation really to 'get into' the subject matter?

6. Please comment briefly on the particular strengths and/or weaknesses of any or all of the following as they relate to your experience in this course or to what you got out of it:

Reading Material

Tests

Handouts

Written Assignments

Teaching Assistant(s)

Other Students

Yourself

→

7. What were the most satisfying things about the course and the instructor? The most disappointing?

8. Please make any further evaluative comments or suggestions for improvement here.

Thanks for your help.

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STUDENT INSTRUCTIONAL REPORT

SIR Report Number

This questionnaire gives you an opportunity to express anonymously your views of this course and the way it has been taught. Indicate the response closest to your view by blackening the appropriate oval. Use a soft lead pencil (preferably No. 2) for all responses to the questionnaire. Do not use an ink or ball point pen

SECTION I Items 1-20. Blacken one response number for each question.

NA (0) = Not Applicable or don't know. The statement does not apply to this course or instructor, or you simply are not able to give a knowledgeable response

SA (4) = Strongly Agree. You strongly agree with the statement as it applies to this course or instructor.

A (3) = Agree. You agree more than you disagree with the statement as it applies to this course or instructor.

D (2) = Disagree. You disagree more than you agree with the statement as it applies to this course or instructor.

SD (1) = Strongly Disagree. You strongly disagree with the statement as it applies to this course or instructor.

		NA	SA	A	D	SD
1.	The instructor's objectives for the course have been made clear	(0)	(4)	(3)	(2)	(1)
2.	There was considerable agreement between the announced objectives of the course and what was actually taught	(0)	(4)	(3)	(2)	(1)
3.	The instructor used class time well	(0)	(4)	(3)	(2)	(1)
4.	The instructor was readily available for consultation with students	(0)	(4)	(3)	(2)	(1)
5.	The instructor seemed to know when students didn't understand the material	(0)	(4)	(3)	(2)	(1)
6.	Lectures were too repetitive of what was in the textbook(s)	(0)	(4)	(3)	(2)	(1)
7.	The instructor encouraged students to think for themselves	(0)	(4)	(3)	(2)	(1)
8.	The instructor seemed genuinely concerned with students' progress and was actively helpful	(0)	(4)	(3)	(2)	(1)
9.	The instructor made helpful comments on papers or exams	(0)	(4)	(3)	(2)	(1)
10.	The instructor raised challenging questions or problems for discussion	(0)	(4)	(3)	(2)	(1)
11.	In this class I felt free to ask questions or express my opinions	(0)	(4)	(3)	(2)	(1)
12.	The instructor was well prepared for each class	(0)	(4)	(3)	(2)	(1)
13.	The instructor told students how they would be evaluated in the course	(0)	(4)	(3)	(2)	(1)
14.	The instructor summarized or emphasized major points in lectures or discussions	(0)	(4)	(3)	(2)	(1)
15.	My interest in the subject area has been stimulated by this course	(0)	(4)	(3)	(2)	(1)
16.	The scope of the course has been too limited; not enough material has been covered	(0)	(4)	(3)	(2)	(1)
17.	Examinations reflected the important aspects of the course	(0)	(4)	(3)	(2)	(1)
18.	I have been putting a good deal of effort into this course	(0)	(4)	(3)	(2)	(1)
19.	The instructor was open to other viewpoints	(0)	(4)	(3)	(2)	(1)
20.	In my opinion, the instructor has accomplished (is accomplishing) his or her objectives for the course	(0)	(4)	(3)	(2)	(1)

SECTION II Items 21-31. Blacken one response number for each question.

21. For my preparation and ability, the level of difficulty of this course was:
- (1) Very elementary
- (2) Somewhat elementary
- (3) About right
- (4) Somewhat difficult
- (5) Very difficult

22. The work load for this course in relation to other courses of equal credit was:
- (1) Much lighter
- (2) Lighter
- (3) About the same
- (4) Heavier
- (5) Much heavier

23. For me, the pace at which the instructor covered the material during the term was:
- (1) Very slow
- (2) Somewhat slow
- (3) Just about right
- (4) Somewhat fast
- (5) Very fast

24. To what extent did the instructor use examples or illustrations to help clarify the material?
- (4) Frequently
- (3) Occasionally
- (2) Seldom
- (1) Never

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Questionnaire continued on the other side.

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25. **Was class size satisfactory for the method of conducting the class?**

- (1) Yes, most of the time
- (2) No, class was too large
- (3) No, class was too small
- (4) It didn't make any difference one way or the other

26. Which one of the following best describes this course for you?

- (1) Major requirement or elective within major field
- (2) Minor requirement or required elective outside major field
- (3) College requirement but not part of my major or minor field
- (4) Elective not required in any way
- (5) Other

27. Which one of the following was your most important reason for selecting this course?

- (1) Friend(s) recommended it
- (2) Faculty advisor's recommendation
- (3) Teacher's excellent reputation
- (4) Thought I could make a good grade
- (5) Could use pass/no credit option
- (6) It was required
- (7) Subject was of interest
- (8) Other

28. What grade do you expect to receive in this course?

- (1) A
- (2) B
- (3) C
- (4) D
- (5) Fail
- (6) Pass
- (7) No credit
- (8) Other

29. What is your approximate cumulative grade-point average?

- (1) 3.50-4.00
- (2) 3.00-3.49
- (3) 2.50-2.99
- (4) 2.00-2.49
- (5) 1.50-1.99
- (6) 1.00-1.49
- (7) Less than 1.00
- (8) None yet--freshman or transfer

30. What is your class level?

- (1) Freshman
- (2) Sophomore
- (3) Junior
- (4) Senior
- (5) Graduate
- (6) Other

31. Sex:

- (1) Female
- (2) Male

SECTION III Items 32-39. Blacken one response number for each question.

		Not applicable, don't know, or there were none.	Excellent	Good	Satisfactory	Fair	Poor
32.	Overall, I would rate the textbook(s)	0	5	4	3	2	1
33.	Overall, I would rate the supplementary readings	0	5	4	3	2	1
34.	Overall, I would rate the quality of the exams	0	5	4	3	2	1
35.	I would rate the general quality of the lectures	0	5	4	3	2	1
36.	I would rate the overall value of class discussions	0	5	4	3	2	1
37.	Overall, I would rate the laboratories	0	5	4	3	2	1
38.	I would rate the overall value of this course to me as	0	5	4	3	2	1

39. Compared to other instructors you have had (secondary school and college), how effective has the instructor been in this course? (Blacken one response number.)

One of the most effective (among the top 10%)	More effective than most (among the top 30%)	About average	Not as effective as most (in the lowest 30%)	One of the least effective (in the lowest 10%)
5	4	3	2	1

SECTION IV Items 40-49. If the instructor provided supplementary questions and response options, use this section for responding. Blacken only one response number for each question.

	NA											NA									
40.	0	1	2	3	4	5	6	7	8	9	45.	0	1	2	3	4	5	6	7	8	9
41.	0	1	2	3	4	5	6	7	8	9	46.	0	1	2	3	4	5	6	7	8	9
42.	0	1	2	3	4	5	6	7	8	9	47.	0	1	2	3	4	5	6	7	8	9
43.	0	1	2	3	4	5	6	7	8	9	48.	0	1	2	3	4	5	6	7	8	9
44.	0	1	2	3	4	5	6	7	8	9	49.	0	1	2	3	4	5	6	7	8	9

If you would like to make additional comments about the course or instruction, use a separate sheet of paper. You might elaborate on the particular aspects you liked most as well as those you liked least. Also, how can the course or the way it was taught be improved? PLEASE GIVE THESE COMMENTS TO THE INSTRUCTOR.

If you have any comments or suggestions about this questionnaire (for example, the content or responses available), please send them to: Student Instructional Report, Educational Testing Service, Princeton, New Jersey 08540.

Form II.1 ETS (to be completed by the instructor)

Please respond to each item according to how you would describe this course, your teaching, or the students enrolled. The items parallel those in the student form and will give us the opportunity to see if some of the items are tapping information already known to most instructors.

Your Name ______________________________ Name of Course ______________________________

SECTION I. Items 1-4. **Directions**: Circle one response number for each question. Use any pen or pencil you have handy.

1. For the students enrolled, the pace at which the material in this course is being covered is:
   1 Very slow
   2 Somewhat slow
   3 Just about right
   4 Somewhat fast
   5 Very fast

2. For the students enrolled, the level of difficulty of this course is:
   1 Very elementary
   2 Somewhat elementary
   3 About right
   Somewhat difficult
   5 Very difficult

3. In my opinion the work load for this course in relation to other courses is probably:
   1 Much lighter
   2 Lighter
   3 About the same
   4 Heavier
   5 Much heavier

4. The extent to which I have been using examples and illustrations to help clarify the material of this course is:
   1 Frequently
   2 Occasionally
   3 Seldom
   4 Never

SECTION II. Items 5-21. **Directions**: Circle the number that represents the response closest to your opinion.

NA (0) = Not Applicable or don't know. The statement does not apply to this course or your teaching, or you simply are not able to give a knowledgeable response.

SA (4) = Strongly Agree. You strongly agree with the statement as it applies to this course or your teaching.

A (3) = Agree. You agree more than you disagree with the statement as it applies to this course or your teaching.

D (2) = Disagree. You disagree more than you agree with the statement as it applies to this course or your teaching.

SD (1) = Strongly Disagree. You strongly disagree with the statement as it applies to this course or your teaching.

	NA	SA	A	D	SD
5. I feel my objectives for the course have been made clear to students..	0	4	3	2	1
6. There has been considerable agreement between the announced objectives of the course and what is being taught..............................	0	4	3	2	1
7. I feel that I have been using class time well........................	0	4	3	2	1
8. I have been readily available for consultation with students..........	0	4	3	2	1
9. I feel I know when students don't understand the material.............	0	4	3	2	1
10. I encourage students to think for themselves in this course...........	0	4	3	2	1
11. I have been genuinely concerned about whether students learn and try to be actively helpful...	0	4	3	2	1
12. I make a point of adding helpful comments on students papers or exams.	0	4	3	2	1
13. I have been raising challenging questions or problems for discussion..	0	4	3	2	1
14. In this class, students are free to ask questions or express their opinions..	0	4	3	2	1
15. I think that I have been well-prepared for each class................	0	4	3	2	1
16. I have informed students of how they would be evaluated in the course.	0	4	3	2	1
17. I have summarized or emphasized major points of lectures or discussion.	0	4	3	2	1
18. I feel that students' interest in the subject area is being stimulated by this course..	0	4	3	2	1
19. Students seem to be putting a good deal of effort into this course....	0	4	3	2	1
20. I feel that I am open to other viewpoints............................	0	4	3	2	1
21. I feel that I am accomplishing objectives for the course at this point	0	4	3	2	1

Form III.1 ETS

Midsemester STUDENT INSTRUCTIONAL REPORT

The codes SA(1), A(2)... have been reversed to SA(4), A(3) in the latest revision of this form.

Name of Instructor ______________________

Name of Course ______________________

This questionnaire gives you an opportunity to express anonymously your perceptions of this course and the way it has been taught. Responses will be summarized and given only to your instructor.

SECTION I. Items 1-4. *Directions:* Circle one response number for each question. Use any pen or pencil you have handy.

1. For me, the pace at which the instructor covers the material is:
   - 1 Very slow
   - 2 Somewhat slow
   - 3 Just about right
   - 4 Somewhat fast
   - 5 Very fast

2. For my preparation and ability, the level of difficulty of this course is:
   - 1 Very elementary
   - 2 Somewhat elementary
   - 3 About right
   - 4 Somewhat difficult
   - 5 Very difficult

3. The work load for this course in relation to other courses of equal credit is:
   - 1 Much lighter
   - 2 Lighter
   - 3 About the same
   - 4 Heavier
   - 5 Much heavier

4. To what extent does the instructor use examples or illustrations to help clarify the material?
   - 1 Frequently
   - 2 Occasionally
   - 3 Seldom
   - 4 Never

SECTION II. Items 5-23. *Directions:* Circle the number that represents the response closest to your opinion.

NA (0) = *Not Applicable or don't know.* The statement does not apply to this course or instructor, or you simply are not able to give a knowledgeable response.

SA (1) = *Strongly Agree.* You strongly agree with the statement as it applies to this course or instructor.

A (2) = *Agree.* You agree more than you disagree with the statement as it applies to this course or instructor.

D (3) = *Disagree.* You disagree more than you agree with the statement as it applies to this course or instructor.

SD (4) = *Strongly Disagree.* You strongly disagree with the statement as it applies to this course or instructor.

		NA	SA	A	D	SD
5.	The instructor's objectives for the course have been made clear	0	1	2	3	4
6.	There has been considerable agreement between the announced objectives of the course and what is being taught	0	1	2	3	4
7.	The instructor is using class time well	0	1	2	3	4
8.	The instructor is readily available for consultation with students	0	1	2	3	4
9.	The instructor seems to know when students don't understand the material	0	1	2	3	4
10.	Lectures are too repetitive of what is in the textbook(s)	0	1	2	3	4
11.	The instructor encourages students to think for themselves	0	1	2	3	4
12.	The instructor seems genuinely concerned about whether students learn and is actively helpful	0	1	2	3	4
13.	The instructor makes helpful comments on papers or exams	0	1	2	3	4
14.	The instructor raises challenging questions or problems for discussion	0	1	2	3	4
15.	In this class I feel free to ask questions or express my opinions	0	1	2	3	4
16.	The instructor is well-prepared for each class	0	1	2	3	4
17.	The instructor has informed students of how they would be evaluated in the course	0	1	2	3	4
18.	The instructor summarizes or emphasizes major points in lectures or discussions	0	1	2	3	4
19.	My interest in the subject area is being stimulated by this course	0	1	2	3	4
20.	The scope of the course is too limited; not enough material is being covered	0	1	2	3	4
21.	I have been putting a good deal of effort into this course	0	1	2	3	4
22.	The instructor is open to other viewpoints	0	1	2	3	4
23.	In my opinion, the instructor is accomplishing his objectives for the course	0	1	2	3	4

THANK YOU

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Form III.2 University of Minnesota

SURVEY OF STUDENT REACTIONS TO COURSES AND INSTRUCTION

- MIDQUARTER -

Directions: Listed below are a number of statements about the instructor, the course, readings, and examinations. Please indicate, by punching out the appropriate response on the porta-punch card, whether you agree or disagree with each statement.

THE INSTRUCTOR:	Disagree (1)	Uncertain (2)	Agree (3)	Does Not Apply
1. Clearly interprets abstract ideas and theories.				
2. Makes me want to learn more about the subject.				
3. Gives explanations which are clear and to the point.				
4. Makes it clear how each topic fits into the course.				
5. Makes good use of examples and illustrations.				
6. Is aware when students are having difficulty in understanding a topic and changes his approach or offers additional explanations.				
7. When appropriate, relates the material of the course to other areas of knowledge.				
8. Adds to the understanding of the required reading rather than merely repeating it.				
9. Is genuinely interested in the students in the class.				
10. Spends an appropriate amount of time relating text and lecture materials.				
11. Is well organized.				
12. Welcomes questions from the students.				
13. Is available for individual help.				
THE COURSE:				
14. Student responsibilities are clearly defined.				
15. Course topics are related to one another and follow a coherent sequence.				

(over)

THE COURSE (Continued)	Disagree (1)	Uncertain (2)	Agree (3)	Does Not Apply
16. The amount of work required is appropriate for the level of the course.				
17. Students are given information during the course regarding their progress, through quizzes, tests, or other feedback.				
TEXT AND OTHER READINGS:				
18. The text book is clear and easy to understand.				
19. Reference materials are readily available.				
20. The amount of assigned reading is reasonable.				
TESTS OR QUIZZES:				
21. Were appropriate in length for the time available.				
22. Gave students an adequate opportunity to show what they have learned so far.				
23. Were made up of questions which, for the most part, were clearly and unambiguously stated.				

COURSE ACTIVITIES:

Directions: Please rate each of the course activities listed below according to how valuable it is to you.

	Practically of No Value (1)	Generally Valuable (2)	Outstanding In Value (3)	Does Not Apply
24. Class lectures.				
25. Labs or demonstrations.				
26. Recitation/discussion sections.				
27. Assigned problems, projects, papers.				
28. Student committees.				
29. Course readings.				
30. Discussions in class.				

Bureau of Institutional Research
University of Minnesota
Winter Quarter 1970

university measurement services center
9 clarence avenue s.e. minneapolis minnesota 55414

student information survey

The better an instructor knows a class, the better he or she can tailor the course to that class. Please think about the following questions and circle your best answer for each.

⇩

1. Which **one of the** following classifications best applies to you? 1) Freshman 2) Sophomore 3) Junior 4) Senior 5) Graduate Student 6) Adult Special

2. How many credits are you carrying this quarter? 1) 5 or fewer 2) 6 - 11 3) 12 - 15 4) 16 - 20 5) 21 or more

3. What is your overall (cumulative) grade-point average (GPA)? 1) 1.9 or less 2) 2.0 - 2.4 3) 2.5 - 2.9 4) 3.0 - 3.4 5) 3.5 - 4.0

4. Is this course in your major or minor field? 1) Major 2) Minor 3) Neither 4) Not yet decided on major or minor

5. Are you taking this course A-F or P-N? 1) A-F 2) P-N 3) Other (auditor, visitor, etc.)

How interested are you in each of the following subject-matter areas? Circle 1, 2, 3, or 4 according to the degree of your interest.

	Little or No interest	Some Interest	Much Interest	Very much Interest
6. Physical Sciences: physics, biology, chemistry, etc.	1	2	3	4
7. Behavioral Sciences: psychology, sociology, etc.	1	2	3	4
8. Humanities: literature, music, art, etc.	1	2	3	4
9. Symbol Systems: math, logic, computer sciences, etc.	1	2	3	4
10. Languages (speaking, writing) and communication skills	1	2	3	4
Your instructor might specify one or two additional areas; if so, please write them in and answer here 11. ____________	1	2	3	4
12. ____________	1	2	3	4

How extensive is your background in each of the following subject-matter areas? Circle 1, 2, 3, or 4 according to the strength of your background.

	Little or No background	Some Background	Much Background	Very much Background
13. Physical Sciences: physics, biology, chemistry, etc.	1	2	3	4
14. Behavioral Sciences: psychology, sociology, etc.	1	2	3	4
15. Humanities: literature, music, art, etc.	1	2	3	4
16. Symbol Systems: math, logic, computer sciences, etc.	1	2	3	4
17. Languages (speaking, writing) and communication skills	1	2	3	4
Your instructor might specify one or two additional areas; if so, please write them in and answer here 18. ____________	1	2	3	4
19. ____________	1	2	3	4

How much influence did each of the following have on your decision to take this course? Circle 1, 2, 3, or 4 according to the degree of influence.

	Little or No Influence	Some Influence	Much Influence	Very much Influence
20. Course was required by college, department, or program	1	2	3	4
21. Course was suggested by college, department, or program	1	2	3	4
22. Course was suggested by faculty advisor	1	2	3	4
23. I chose the course for educational reasons (interests, goals, curiosity, etc.)	1	2	3	4
24. I chose the course for non-educational reasons (convenient time, place, etc.)	1	2	3	4
Your instructor might specify one or two additional reasons; if so, please write them in and answer here. 25. ______	1		3	4
26. ______	1	2	3	4

Thinking about your own educational needs, how important is each of the following instructor characteristics to you? Circle 1, 2, 3, or 4 according to its importance to you.

	Little or No Importance	Some Importance	Much Importance	Very much Importance
27. The instructor communicates effectively	1	2	3	4
28. The instructor keeps the presentation organized	1	2	3	4
29. The instructor is open to other viewpoints	1	2	3	4
30. The instructor stimulates me to think	1	2	3	4
31. The instructor motivates me to work	1	2	3	4
32. The instructor has a firm command of his subject	1	2	3	4
33. The instructor is accessible outside of class	1	2	3	4
34. The instructor lets me know early how well I'm doing	1	2	3	4
Your instructor might specify one or two additional characteristics; if so, please write them in and answer here. 35. ______	1	2	3	4
36. ______	1	2	3	4

Finally, your instructor might specify some additional questions. If so, please write them in and answer here:

37. ______	1		3	
38. ______	1	2	3	4
39. ______	1	2	3	4
40. ______	1	2	3	4

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Thanks very much.

Chapter 13

LEARNING AIDS FOR CLASSROOM TEACHING

W. Lee Hansen

NEEDS

"A picture is worth a thousand words," sums up the importance of knowing how a wide array of visual learning aids can be effectively utilized by economics instructors to enrich their teaching. Economists have typically limited themselves to blackboards and mimeographed handouts. But now a variety of other materials are becoming available which should be considered by economics instructors in the design and teaching of their courses. The proliferation of various teaching-learning aids, has created a need to review the opportunities they provide for enhancing the learning of economics, describe how to get access to some of these aids, discuss the costs their use entails, and offer tips on how they can be employed most effectively in the classroom.

GOALS

The goal of this chapter is to describe the variety of learning aids available for use in teaching college-level economics, to indicate the strengths and weaknesses of each, and to provide specific suggestions that will help new users of these aids employ them effectively in their teaching.

OBJECTIVES

COGNITIVE OBJECTIVES

After reading this chapter you will be able to

1. identify six major types of teaching-learning aids.
2. list two strengths and weaknesses of each type of aid.
3. identify five tips for using blackboards, handouts, overhead transparencies, and slides-films-videotapes.
4. indicate how these aids can be used in a student learning center.

AFFECTIVE OBJECTIVES

After reading this chapter, you will

1. be aware of the many ways that visual and audiovisual aids can be used to enhance the quality of economics instruction.
2. begin to incorporate some of the suggestions provided here into your own teaching.

OUTLINE OF MAIN POINTS

Blackboards, Handouts, and Overhead Transparencies
    Blackboards
    Blackboard Tips
    Handouts
    Tips on Handouts
    Overhead Transparencies
        Technical Tips
        Instructional Tips
Slides, Films, and Videotapes
    Slides
    Films
    Audiotapes
    Videotapes
    Tips on the Use of Slides, Films, Audiotapes, and Videotapes
Learning Center Use of Teaching-Learning Aids
References
Exercises

LEARNING AIDS FOR CLASSROOM TEACHING

To be effective teachers of economics, instructors should rely on more than their voices, good eye contact, their lecture notes, and the readings assigned to their students. Most instructors have long recognized this by making extensive use of blackboards to display outlines, diagrams, data, and the like. With less frequency they prepare handouts for use in class or outside of it, to help explain difficult concepts, introduce topical material, or augment the lectures or texts. But only recently have a sprinkling of economics teachers begun to make extensive use of audiovisual instructional aids, such as overhead projector transparencies, slides, films, audiotapes, and videotapes.

Though a considerable number of instructors get by without the use of any teaching aids whatsoever, most of us realize that we cannot rely on the power of our spoken words alone to communicate effectively to our students some of the complex material we teach. We are, therefore, already conditioned to use at least the blackboard. We also know, from our own experience as students, that alternative modes of presentation can help get the material across, in part because different students learn in different ways. And we recognize that teaching aids can reduce the time it takes to present certain types of material--thereby helping us win the fight against the finite class time we have available to present the abundant amount of material we want our students to master. Yet most of us fail to exploit to the fullest the variety of aids available and that we know to be useful.

Teaching aids can serve several distinct functions. The first is to help students understand the ground to be covered. This is reflected by our course syllabi, our introductory comments at the start of each class, and the outlines of the day's lecture we sometimes make available to students. In an important sense these are summaries of what is to follow. More than that, they can embody our instructional objectives. At still another level they can serve as what educational psychologists have called "advanced organizers," that is, they provide the broad scaffolding within which more detailed information and examples can be fitted by the student learner. Most instructors view the preparation of a syllabus as a normal part of their work in providing students with a roadmap of the course. They are less likely to provide additional roadmaps and prepared statements to help students understand where they are going in particular parts of courses and individual lectures.

A second major purpose of teaching aids is to provide material that complements what is presented orally in lectures. This may involve alternative treatments of the same topics which can help students understand the material better by allowing them to approach it from another direction. We often explain a concept or principle orally, for example, then illustrate it with a graph, and perhaps conclude by giving a numerical example, the purpose of the whole exercise being to reinforce the original oral presentation. In other cases, we present a whole series of examples to illustrate the use of a single concept or principle.

A third purpose of teaching aids is to present what might be called substitute material, which takes students beyond what can be presented in the lecture and texts and which allows them to further their knowledge independently of the instructor. Since substitute materials are just what the words imply, they are usually confined to printed handouts which students can study at their leisure. With the development of well-equipped student learning centers on many campuses, however, there are now good opportunities for making available an array of audiovisual materials directed to students who want to go beyond the material covered in the course and to others who may require remedial instruction to fill gaps in their knowledge and skills.

I turn now to a discussion of the advantages and disadvantages of a variety of classroom teaching learning aids, the availability of the materials, and tips on their classroom use. I take up blackboards, handouts, overhead transparencies, slides, films, audiotapes, and videotapes. I conclude with suggestions about how the student centers that are becoming increasingly common at universities and colleges can be effective places for storage and use of such materials.

BLACKBOARDS, HANDOUTS, AND OVERHEAD TRANSPARENCIES

Blackboards, handouts and overhead transparencies are fairly good substitutes for one another. I will, therefore, consider them as a group.

Blackboards. Blackboards offer the cheapest, most convenient, and in many ways most effective aid in presenting important material in the classroom. Outlines, graphs, charts, figures, data, proofs, lists--all can be displayed on blackboards with a fair degree of ease. Such material can be written on the blackboard before class, or students can follow the development of the material as it is written on the blackboard during the course of a lecture. Modifications can be made quickly, errors can be corrected easily, and extensions can be pursued. For the instructor all that is needed is a piece of chalk and an eraser; no prior negotiations and arrangements are necessary. Extra colors of chalk enables the instructor to highlight particular portions of the blackboard display. For students there are considerable benefits from both the visual approach and the act of having to follow and then copy the material in their notes.

Blackboards do, however, have some important limitations. First, if material is to be copied onto the blackboard before the class begins, the instructor must allow time for this task. If done in class, the instructor not only loses eye contact with the students but has reduced verbal contact also while concentrating his efforts on the blackboard. Second, it is easy to be careless in writing on the board, particularly when writing quickly, and errors frequently occur. Later corrections of instructor errors are not always caught by students. Third, the students' desire to copy the material often interferes with the teacher's objective to present additional material; the commentary usually proceeds faster than students can simultaneously comprehend and write. Fourth, though colored chalk can enhance board work, students are not usually equipped with color pens or pencils to replicate the colors in their notes. Fifth, students, too, can introduce errors in copying the material. Finally, the limited amount of blackboard space in many classrooms often necessitates erasure of material before it has lost its relevance for the discussion. Thus, while blackboards offer considerable advantages, primarily for the instructor, they are by no means perfect as a teaching aid.

Blackboard Tips[1]

1. Where possible, plan in advance what material is to be written

---

[1] These have been adapted from an MIT booklet, You and Your Students.

on the blackboard, in what order it is to be placed, and how it is to be arranged.

2. Use chalk which is soft enough, and bear down on it hard enough, to produce lines which show plainly from any part of the room. If your chalk tends to squeak, hold it at a sharper angle with the blackboard.

3. Write more than large enough for clear and unambiguous reading from any part of the room. This will generally be larger than the instructor near the board would guess. Letters whose height is about one-half percent of the depth of the room are adequate, if they are drawn heavily enough. Letters two to three inches high will suffice in small classrooms; letters four to five inches high are needed in larger lecture halls. (Some lecture halls are too large for the use of a blackboard at all, and overhead transparencies must be substituted.)

4. Adjust the window shades or other lighting arrangements so that the blackboard is free from reflected glare. If this cannot be done, find out what portions of the blackboard are "dead" and avoid them.

5. Do not use colored chalk indiscriminately. If you want your blackboard diagrams to be aids to initial understanding but do not expect students to copy the diagrams in their notes, the use of colored chalk can be very helpful. If you expect students to take complete notes from the blackboard, remember that they are probably writing with one color only. Do not, therefore, use colors the student cannot copy if a drawing could be made clearer with white chalk alone, plus a little more effort.

6. Write, print, or draw neatly and legibly. Do not scribble. Use standard abbreviations if their meaning is obvious, but do not resort to abbreviations as a cover-up for spelling deficiencies.

7. The blackboard is the visual counterpart to the oral presentation. Devote equal care to each. The combined impact on the senses of sight and hearing is the objective.

8. Talk to students, not to the blackboard.

9. Stand in such a position that what you have written and are in the process of writing is not obscured by your body but clearly visible. Left-handers have some advantages here, but right-handers can manage well with practice in the minor contortions needed.

10. Do not, as a general rule, begin writing in the middle of the blackboard. Write in columns rather than lines across the whole blackboard. Start in the upper left-hand corner. Proceed downward until a first column is filled, then move to the right for a second column, etc. If you reach the right-hand side of the board and need more space, erase the entire first column and begin again, from left to right. Systematic use of the blackboard makes note-taking easier for the student because of its orderly appearance, and permits your listeners to review the past steps you have taken without searching for bits here and there. At any point in a lecture, an orderly and sequential set of notes should be obtainable if one were to photograph the blackboards. In lecture halls which have vertically rising\and overlying boards, begin writing on the outer or front board. When it is full, elevate it, and continue on the inner or back board. Thus the entire sequence of the presentation will be displayed in the most orderly and most useful way.

Handouts. Printed handouts--one or more sheets of paper given to each student containing material to be gone over in class or to be studied outside of class--are another useful but less widely used classroom teaching aid.

Handouts have some important advantages over the blackboard. They can economize on class time by being prepared beforehand, they can be annotated by students, they can (should) be read easily by students, and they minimize errors by cutting out the steps of copying the material first onto the blackboard and from there onto student notes. In addition, handouts, including already-printed materials prepared by others, can be used to make longer and more complex material available which is not possible on the blackboard. Of particular importance is the possibility of reproducing pictorial material.

There are some offsetting disadvantages. A principal one is the cost of preparing and reproducing such material: With typically limited supplies budgets available for most departments, there may be little or no possibility for using handouts. Another difficulty is that handouts require both more advance planning and coordination with the secretarial staff: Those instructors who prepare on a day-to-day basis will not have enough time to get such material available for timely use in class.

And those who have limited secretarial help or can't get along with the secretarial staff that is available may find the time and effort for getting the handouts together too great to even consider their use. And, finally, the new copyright law passed in 1976 restricts somewhat the typical abandon with which instructors have in the past reproduced copyrighted material for classroom use.

The sources of handout material should present no great difficulties for most instructors. Some of the material will be developed out of the instructor's own knowledge of economics, some will reflect the difficulties students may be experiencing in mastering certain kinds of knowledge, and some will represent the choice of particularly appropriate material prepared by others and used to complement what the instructor is attempting to do. For the latter purpose, the daily newspapers and weekly news magazines offer a rich source of material that can be used as it is or readily modified through rewriting to circumvent copyright problems.

Tips on Handouts

1. The usual advice on the preparation of printed materials holds--it should be well organized and written, clearly arranged on the page, titled and dated, carry a course identification, and so on.

2. It is wise to limit yourself on the number of different handouts you provide. Students find it frustrating to be deluged with large numbers of handout sheets (particularly if tip number 1 is not followed and the handouts cannot be organized into their notes because of the absence of titles and dates). If you do plan to use a series of handouts, it may be better to assemble and staple them before they are distributed; this will not only preserve the order of the handouts but also facilitate their retention and use.

3. Students also dislike receiving handouts that don't seem to have an obvious purpose. If they find that early handouts are not used in class discussion, do not complement the content of the course, are not helpful in completing problem sets, and do not help improve their exam scores, it is highly likely that the handouts will go unread. This represents a waste of the instructor's time and the departmental resources used to provide them. Be clear as to the purpose of the handouts you provide.

4. The ultimate solution is to prepare the needed handouts for an entire semester and arrange to have them sold through the campus bookstore or some similar enterprise. Although the costs can be exhorbitantly high for small courses, cost economies come into play as class size increases. While such preparation of handout packets requires considerable work before the course begins, it pushes the cost of the handouts onto students and off the department budget, and it frees the instructor of concern for the preparation of handouts once the course begins.

Overhead Transparencies. Overhead transparencies represent a kind of hybrid of blackboards and handouts. An overhead transparency projector allows the instructor to obtain enlarged images projected onto a screen at the front of the room of either previously prepared transparencies or the unfolding notes or diagrams written by the instructor as he proceeds through a lecture presentation. The major advantages of overhead transparencies accrue by freeing the instructor from the blackboard, offering abundant space for the presentation of material, and permitting better eye contact with students because the instructor can face students while discussing a transparency or even developing one in front of the class. Using a range of colors helps pinpoint particular effects that might be obscured on a handout or difficult to portray on the blackboard. The use of overlays and marking facilitates the presentation of periodic or dynamic processes, such as the effects on equilibrium price of shifts in supply and demand curves. Like handouts, transparencies can be prepared beforehand, thereby making it possible to do a more professional looking job and also increasing the ability of the instructor to communicate to students. (Prior preparation, by the way, is a most effective method of preparing a lecture because the development of the transparencies and the commentary on them requires careful planning of the entire lecture. A quick rehearsal after that virtually ensures a reasonably competent lecture presentation.) They can also be developed in front of the class on individual transparency sheets or continuous acetate rolls; or already-prepared transparencies can be supplemented in class. Thus, transparencies give both the flexibility of the blackboard and the benefits or prior preparation required for handouts. Overhead transparencies are particularly useful in large lecture courses where it is important to maintain momentum by not using large blocks of time to write on the blackboard, to maintain good eye contact with the class, and to facilitate the ability of students to see the material (not always possible with blackboards because of their size and glare). In addition, transparencies provide a permanent record that can be helpful when questions arise later about a particular presentation.

The disadvantages of transparencies are minimal. They require prior planning but this is not necessarily a disadvantage. They do necessitate having a room with a screen and an overhead projector machine; actually, projectors can be carried fairly easily in case they are not permanently located in classrooms. Some instructors believe that transparencies have a confining effect on them by reducing their mobility in front of the classroom, but the advantages of better eye contact, better control over the presentation, and the ability to make use of prepared materials far outweigh the disadvantages.

Transparencies can be prepared by any instructor who can draw and print with little more competence than is required to use the blackboard. All that is needed are blank sheets or rolls of clear acetate and special marker pens which come in a variety of colors. A rough draft of the transparency can easily be drawn or traced onto the acetate. Newspaper headlines or photos can be transferred by copy machine onto plain white paper from which a transparency can then be made with the help of a small transparency maker copy machine. The possibilities for making transparencies are described in any one of a variety of books on audiovisual materials; help can also be obtained from your campus audiovisual experts.

Transparencies - Technical Tips

1. Well before your first class, make up several transparencies, and take them and the projector to your classroom so that you can become familiar with any problems that might develop. You may discover the need for a table for the projector; an extension cord may be required to reach the electrical outlet; the screen may have some idiosyncrasy. In addition, practice using the transparencies so that you have a feel for the process. Finally, walk to the back of the room and check to make certain that your transparencies are clearly readable to the

backbenchers. If they are not, make additional transparencies until you have hit upon the proper size of the letters you are using.

2. Make certain that you have a spare bulb with the machine. Nothing is more frustrating than being in the middle of a presentation when the bulb burns out; the frustration is much worse if you do not have a replacement bulb with you. Find out how to change the bulb; the most important things to remember are (a) to unplug the machine to prevent a public electrocution and (b) to use a handkerchief or piece of cloth in order to prevent a public burning as you remove the old bulb.

3. Arrange your transparencies in order of presentation and make special notations in the margin of your lecture notes indicating when to put on the next transparency and which one. Those who do not take this precaution get so wrapped up in their subject that they are apt to forget to use the transparencies altogether.

4. Leave the transparencies on the screen long enough for students to read them and to copy down the material presented. If you go too fast, they'll probably let you know soon enough. If you do not want students to copy certain material that is illustrative or tangential, tell them beforehand to look and follow the discussion instead. This will reduce the frustration of the compulsive students who try to copy down everything.

5. When you use transparency overlays that involve presentation of say first a supply curve, then a demand curve, and finally equilibrium price and quantity, make certain that you place them in proper alignment one on top of the other. Otherwise, you may confuse rather than clarify. And the use of masking and hinged transparencies to permit the progressive uncovering of the material on a transparency can be a highly effective method for presenting difficult material.

6. When you have finished with a transparency and do not plan to use another one for a few minutes, it is advisable to turn off the machine. This helps to focus attention back on what you are saying. When you are ready to use another transparency, being able to switch on the machine again will redirect student attention to the screen.

7. While many instructors will no doubt prefer to work with individual transparency sheets, particularly for creating transparencies in responding to student questions, some instructors prefer to use

acetate rolls and present their materials much as they would on the blackboard. There is nothing wrong with this procedure; it is probably much better than using the blackboard by itself. On the other hand, the use of previously prepared transparencies for presenting key concepts is well worth the time involved in their preparation.

Transparencies - Instructional Tips

1. Information on assignments, examinations, and the like can be announced efficiently with transparencies, thereby saving class time for more important things. Moreover, the transparency can be put back on the screen at the end of the class.

2. As the class begins, an outline of the day's material can be shown, thereby enabling students to know what you are attempting to do in the lecture that day.

3. Toward the end of the hour it is easy to present a review of the major points of the class and, by looking at them yourself to check whether you did in fact cover all of them.

4. Background information can readily be presented, to fill students in on the context of a problem or issue as you discuss it.

5. Pertinent quotations from economists or others can be introduced by flashing them on the screen.

6. If you want to talk about a current economic issue, there is no better stimulator of interest than a transparency featuring the morning newspaper headline, a picture of a noteworthy person in the news, a cartoon, or something similar.

7. Do not use too many transparencies. An excessive number will detract from your message. A dozen for a 50-minute class is probably the upper limit.

8. Do not try to pack everything onto your transparencies. They are an aid to instruction, not a substitute for it.

9. Vary your presentation by interspersing among your prepared transparencies a blank one on which you write down several points, draw a diagram, or whatever. This provides a change of pace and may help reveal how you respond spontaneously--it will indicate that you are not a mere automaton pushing your way through a well-prepared lecture.

SLIDES, FILMS, AUDIOTAPES, AND VIDEOTAPES

These teaching aids can also be grouped together as reasonably close substitutes. What really distinguishes these from blackboards, handouts, and overhead transparencies, is the quantum change in equipment and facilities they require and the greater costs of producing, buying, or renting these materials.

Slides. Slides, though rather widely used in some of the sciences to bring students closer to phenomena they could not otherwise observe, have had relatively limited use in economics. The reasons are not too hard to discover. There is not a great deal in economics that lends itself to a slide presentation or, at least, few have yet discovered the secret of developing such presentations. I have developed one presentation dealing with the rise and subsequent decline of coffee prices over the 1975-78 period: It demonstrates the close link between newspaper reports and the formal supply-demand apparatus by interspersing along with a few photos, slides of newspaper headlines, price data, and supply and demand diagrams. Students and others have said they profited more from this presentation than they would have from a traditional lecture on the topic. Whether my particular slide-lecture was, in fact, superior to a lecture on the coffee market plus a reading that incorporated the material in the slides is not clear. What is clear is that, in general, slides offer the possibility of putting together a prepackaged (therefore deliberately thought out) presentation that can be utilized again and again.

The time and costs required to develop even a one-hour slide presentation are, of course, considerable. The material must first be selected; the slides must then be prepared. For those who are not photography buffs, the cost of having the campus audiovisual center produce individual slides is probably about $10 per slide. Multiply by the 30 or so slides normally used in a 30-minute presentation, and the cost comes to about $300. In addition, a properly equipped classroom is required, the room must be relatively dark during the presentation (which by the way makes notetaking difficult for students), and there is always the danger of getting carried away with your subject and including slides which are not central to the theme of the presentation.

Commercially prepared slide presentations in economics are almost nonexistent. Some of the introductory textbook "packages" of materials do contain slides, but these turn out almost invariably to be merely reproductions of text diagrams. At least one text has put together a slide-audiotape presentation for individualized learning programs but these, by definition, are not designed for use by an instructor teaching his own class. As already noted, the cost of obtaining a useful set of slides for even a single lecture presentation can be substantial; until the market for slides is developed, it seems unlikely that anyone will embark on producing them for a specific course.

Films. Films, like slides, seem not to have made inroads into the classroom teaching of economics. For one thing, there are few films that deal with the kinds of things we traditionally talk about in our economics courses. The available educational films are typically long on visuals and short on economics, with the result that they seem to be too time consuming to use in class. Feature length films, to the extent they have anything to say about economics, require even more time to show. (One advantage is that numerous films can be borrowed at no cost or a minimal rental charge.)

These negative comments are not meant to deter instructors from searching out films that fit specific purposes they may have in mind. On the 200th anniversary of the publication of Adam Smith's Wealth of Nations, for example, I showed students in a large one-semester introductory course a film dealing with Smith's life and ideas. Despite snickers at several points, the film, which effectively revealed the wide range of Smith's ideas, was well received.

No compilation of films that might be suitable for use in teaching college-level economics courses is currently available. There is, however, a need for such a list plus a discussion of how to relate the available films to the material we want to cover in our teaching. My recommendation, in the current dearth of such material, is for specific instructors to get what information they can from film experts on their campus and from the various catalogs of educational films.

Audiotapes. Audiotapes are now available with several "packaged" introductory courses, and are designed to help reinforce the text material. There is also a set of tapes produced in England which take students well beyond introductory material. Instructors can develop tapes of their own to complement their lectures or for independent use by students. These can range from the regular taping of lectures to the development of special case studies, and they can perhaps include comments of famous economists or dialogues on economic issues.

We don't know much about the use of audiotapes in economics instruction. It would appear that such tapes are probably most useful for individual listening and less appropriate for class use. In my own experiments with tapes, I have placed them in a student learning center (see below) and used them to supplement regular instruction for those students who might desire to do so.

Videotapes. An interesting possibility for the future is the use of videotapes in the classroom. Such tapes could bring into the classroom discussions among economics experts on current policy issues; permit the use of television shows or portions of them dealing with economic issues, such as some of the PBS specials; and also facilitate the presentation of locally developed materials.

Two major problems currently inhibit the use of videotape material. The first concerns the facilities for utilizing videotapes in classrooms. Relatively few classrooms are equipped with videotape monitors to permit the easy and efficient viewing of tapes and, even where such classrooms do exist, difficulties may be encountered in scheduling your classes in these facilities. Some large campuses now have multimedia lecture halls which permit the rear-screen projection of videotapes onto movie theater sized screens. Again, there may be scheduling difficulties, given the paucity of such facilities. What is needed is a technological breakthrough that results in relatively inexpensive TV monitors of a size that will facilitate easy viewing in large classrooms.

The second concerns the cost of renting and/or purchasing the videotapes. Most commercially prepared tapes carry rental prices of $25 to $50 for use over a 1-2 day period; purchase prices tend to be about 10 times the rental fee. The other is the difficulty of precise scheduling of rental tapes. It is not always possible to show the tape on the scheduled date because of its unavailability or slow mail delivery.

Videotapes are, however, becoming available at a more rapid rate than are films, principally because of their much lower costs of production.

Both the Brookings Institution and the American Enterprise Institute are producing videotapes (that can be rented or purchased) of discussions by prominent economists and other experts on current policy issues. These tapes are sometimes presented on local TV stations, including cable and PBS stations. Those that are in fact owned by a local station could possibly be borrowed for classroom use. The growing accessibility of videorecorders should also make it increasingly possible to copy these tapes for later use in the classroom; of course, certain legal issues may have to be resolved before this is done.

There are as yet neither catalogs of these tapes nor detailed suggestions for using them in teaching economics courses. Until this need is filled, the use of videotapes will continue to be extremely limited.

Tips on the Use of Slides, Films, Audiotapes, and Videotapes

Slides, films and videotapes as teaching aids are very similar. The comments that follow, therefore apply to all three categories alike.

1. You must preview any material before you show it to students or recommend that students see it. This will ensure that you can vouch for the appropriateness of the content in light of your instructional objectives. It can be acutely embarrassing to discover during the showing that the titles and descriptions do not accurately reflect the contents of the materials. A preview session will also ensure that you are aware of any biases in the material which you may want to point out to and discuss with your students. This is especially important because those groups which undertake to finance them--given that the revenues from producing teaching films and videotapes are likely to fall considerably short of the costs,--may have a special message they are attempting to communicate. Such messages are not in and of themselves reasons for not showing a film or videotape. Students can learn much, perhaps even more than from an unbiased presentation, from being shown how to separate the analysis from the message.

2. You should determine beforehand exactly how the material is to be used and discussed in the class. Students are much less likely to make the connections that may be so apparent to you. Hence, there is need to show how the material fits into the specific as well as the

larger purposes of the course.

3. Involve students in the material rather than simply having them present as passive observers. Working up a series of questions they are to keep in mind as they watch and listen will focus their attention and help bring out what is most important.

4. Use these materials as a takeoff point for class discussion, following some of the suggestions from the chapter on discussion leading. Films and videotapes can be just as rich in content as printed material. It is also quite feasible with a videotape, though difficult with a film, to rewind a portion so that the students can view a particularly valuable portion again.

LEARNING CENTER USE OF TEACHING-LEARNING AIDS

Limitations on facilities, resources, and class time may prevent using some of the aids in the regular classroom. This does not mean they cannot be used at all. It may be possible to have certain types of these materials available for student use at a campus student learning center which possesses the necessary technical facilities, serves as a repository for the materials, and can accommodate students at times convenient to them.

Among the different types of learning aids these centers can accommodate are audiotapes, slide presentations, synchronized audiotape-slide presentations, videotapes, and in certain cases films. Sharing the costs of purchasing some of these materials should be explored, because they can be used by numerous instructors and many more students than would be possible in a single course. Not only must the availability and use of these materials be indicated clearly in the course syllabus, but it is also advisable to have study guides already prepared to accompany each item.

A major difficulty with these materials, whether located in centers or not, is getting instructors to use them. Too often, these materials, once they are available, get forgotten and fall into disuse.

A major cost of their use--and thus a major reason for instructors not to use them--is the time required to preview the material. Printed materials can be reviewed rather quickly. But anything which includes the human voice cannot be speeded up; consequently the time required to become familiar with such material mounts steadily as more of it becomes available. Detailed written descriptions of the materials may help reduce the time but this depends on the confidence instructors are willing to place on written descriptions. (As I have already stressed, such confidence can be misplaced.) If, by contrast, these materials are viewed as supplementary learning aids, it may be less important to know exactly what the material includes. Students are free to make use of the materials in ways that are helpful to them. Nonetheless, as a general rule instructors should be familiar with whatever they assign.

REFERENCES

There are countless books and pamphlets on the use of audiovisual aids though few, if any, deal specifically with economics. Two readily available texts are listed below:

1. Wittich, Walter A. and Schuller, Charles F.: Audiovisual Materials: Their Nature and Use, 4th ed. Harpers, New York, 1967.
2. Minor, Ed and Frye, Harvey A., Techniques for Producing Visual Instructional Media, McGraw-Hill, New York, 1970.

EXERCISES

1. Assume you are asked to explain to your class with the help of a diagram the effect of a supply curve shift (to the right) on equilibrium price in a competitive market. Show on a sheet of paper how you would organize the material for presentation on the blackboard.

2. Next, go to your audiovisual center and develop your blackboard presentation into a series of transparencies to explain the same material.

3. Finally, try out the two alternative ways of presenting the effect of a supply shift, by doing one or more of the following:

   a. Go to an empty classroom and present your material with the aid of a blackboard. If you can get a fellow student to observe you, so much the better; this will give you some feedback on your efforts.

   b. Obtain an overhead projector and give the same presentation using the transparencies you made.

   c. If possible, do both (a) and (b) in a room equipped with a videotape recorder so that you can later see what your presentation looked like to potential students.

Chapter 14

MICROTEACHING

Nicholas Stayrook and Kenneth Majer*

NEEDS

Aspiring as well as novice teachers need opportunities to practice the development of particular teaching skills before live audiences and to obtain feedback from experienced observers so that their skills can be sharpened and improved. Microteaching provides a vehicle for obtaining such opportunities in a less threatening environment than an actual college classroom.

GOALS

The goal of this chapter is to describe microteaching, and indicate how it can contribute to the improvement of specific teaching skills.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After reading this chapter, you will be able to:
   a) define microteaching.
   b) list and describe three phases of microteaching.
   c) discuss two limitations of microteaching.
   d) explain three different approaches to microteaching.
   e) recognize 5 teaching skills that can be learned and practiced utilizing microteaching.

AFFECTIVE OBJECTIVES

1. After reading this chapter it is intended that you will:
   a) recognize the importance of practice with video feedback for improving teaching skills.
   b) plan to engage in microteaching experience prior to and as you continue teaching.

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*This paper, prepared for the 1973 Summer Workshop on the Teaching of College Economics, has been edited and adapted to fit the format of this edition of the Manual.

OUTLINE OF MAIN POINTS

- Three Phases of Microteaching
  - The Modeling Phase
  - The Practice Phase
  - The Feedback Phase
- Limitations of Microteaching
- The Modeling Phase
- The Practice Phase
- The Feedback Phase
- Different Approaches to Microteaching
  - Stanford Approach
  - Affective Emotional Approach
  - Role Playing Approach
- Teaching Skills
  - Reinforcement
  - Stimulus Variation
  - Lecturing
  - Inquiry Training
  - Interpersonal Communication Skills
- References and Suggested Readings
- Do's and Don'ts
- Exercises

MICROTEACHING

Microteaching is a small group practice training procedure that utilizes video tape analysis and guided feedback to the trainee. The teacher-trainee instructs a small (4-8) group of students for a short period (5-10 minutes) working intensively on developing a specific skill, e.g., how to increase pupil discussion by asking particular types of questions. The actual microteaching procedure can emphasize a variety of techniques and conditions. Should the teacher choose to practice skills of lecturing, for example, pupils are desirable, but optional. If a teacher wishes to practice increasing his interpersonal skills, the traditional teacher-pupil lecture environment may not be appropriate; instead, a small group discussion setting will be desirable. Or, if the teacher wants to develop skills to maintain student interest during discussions, the pupils should be instructed to simulate actual behavior such as boredom.

THREE PHASES OF MICROTEACHING

Although microteaching can be used for a variety of purposes and in many different ways, three phases of microteaching are common to all microteaching sessions: modeling, practice, and feedback.

The Modeling Phase. This phase consists of the trainee interpreting a written description of a particular skill. It is also desirable for the trainee to view a model video tape of someone using the particular skill in a classroom setting. Several different types of skills can be presented this way after which discussions of these skills can take place between the trainees and the supervisor of the microteaching program.

The Practice Phase. The second phase involves practice. During this phase the trainee teaches a lesson to a small group of students especially recruited to be micropupils. The trainee is asked to concentrate on one particular skill. Practice can extend for as long as 50 minutes for a lecture to only a few minutes if the focus is on the development of questioning skills. This phase is monitored by video tape.

The Feedback Phase. In the third or feedback phase, the supervisor discusses the lesson with the trainee. The focus is on helping the trainee understand how and when to use the skill in question. Suggestions can also come from the micropupils who participated in the lesson. Finally, the trainee can view the video tape of the microteaching session to observe his own behavior in teaching. This permits the trainee to identify those behaviors he may have been unaware of but would like to change or stress.* Another dimension of microteaching can involve the specification of predefined skills to be developed prior to completion of a training program. Such skills may be necessary to ensure that the needs of students, or particular students, are met by teachers.

LIMITATIONS OF MICROTEACHING

However useful microteaching may be, it has limitations. The most frequent criticism is its artificiality. While this criticism has some truth, the same is true of many other activities in life, particularly sports, where practice in the acquisition of particular skills is essential to the development of some level of overall competence. However artificial the situation may seem to be the benefit of having a low-risk, nonthreatening environment can heavily outweigh the artificiality of the simulated conditions. At the cost of some time, instruction, and funds to pay for micropupils and equipment use, the potential exposure of students to poor teaching is purposefully avoided. The trainee is not practicing during valuable class time, nor is he responsible for increasing the knowledge of the micropupils; he is responsible only for increasing his own knowledge about teaching.

A second limitation is the lack of opportunity to integrate all the teaching skills together into a coherent whole. Microteaching sessions, whatever their length, cannot simulate the entire teaching experience. Although microteaching can augment what is learned by other means, it is no substitute for actually teaching.

We proceed now to a more complete description of the three phases of microteaching.

THE MODELING PHASE

Research has shown that the modeling phase of microteaching is critically important to the overall effectiveness of training (Orme, 1967), (Berliner, 1967), (McDonald, 1967). The purpose of modeling is to show the trainee the skill and how it is used before he actually begins to practice and learn it. Modeling can occur in a number of different ways. The supervisor can lecture the trainee on the skill or provide reading materials for the trainee that describe the behaviors to be learned. Or, and more effectively, the trainee can be shown a video tape of a teacher actually performing the skill. Still another method is to have the supervisor model the skill for the trainee in front of a live class. Among these, using the video tape is the most reliable because it provides a controlled presentation that focuses explicitly on the skill in question.

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*One of the authors remembers an early microteaching experience after which the supervisor suggested he "should take his hands out of his pockets." After denying that he taught completely without the benefit of gesture, he viewed the video tape of this presentation to find his hands were in his pockets the entire time!

THE PRACTICE PHASE

Existing research reveals that four to five practice repetitions in microteaching are generally sufficient to learn new skills (Orme, 1967, Staybrook, 1971) if each of the practice phases lasts approximately five to ten minutes, and if the trainee discusses his teaching with the supervisor after each phase. This cycle of feedback and practice should continue until the supervisor and trainee decide together that the sessions have served their purpose.

To provide complete feedback and the opportunity to observe behaviors unnoticed by the supervisor and inadvertent to the trainee, the practice phase should be video taped. The video taped lessons are reshown immediately and critiqued by the supervisor in a discussion with the trainee and possibly with the micropupils as well.

The most effective practice, of course, occurs when the teacher goes into his or her regular classroom. After all, this is the reality of teaching, the actual setting. This suggests the importance for concerned teachers to periodically make arrangements to have their regular classes taped and to obtain feedback and critiques from valued colleagues or others experienced in microteaching.

THE FEEDBACK PHASE

After the trainee has seen the model and practiced the skill for the first time, he or she may want to discuss the results with a supervisor. The supervisor acts as a consultant to the trainee, giving suggestions for using the skill, pointing out times when the skill was used properly, and helping plan for the next lesson. The supervisor tries to help the trainee build confidence with his or her own teaching style. During the feedback phase the supervisor and trainee together attempt to choose for practice those skills that seem to be most appropriate to the teaching style, teaching skills, and personality of the trainee. This emphasis on designing microteaching sessions that are geared to the needs of the trainee enables supervisors to respond to specific problems if they become identified. In summary, the supervisor's job is not to make the trainees use the skill and thereby change their teaching style; but rather to give the trainees the opportunity to experiment with fitting the skill into their own developing teaching styles.

DIFFERENT APPROACHES TO MICROTEACHING

The microteaching teaching practicum at Indiana University utilizes three approaches, depending on the particular skill to be taught. All three approaches incorporate the three phases described above though with some differences in emphasis. The three approaches are described below to guide readers in selecting which approach is most important for achieving their specific purposes.

Stanford Approach. The work of Allen (1963) at Stanford provided the basis for the development of microteaching as an aid to improving the training of teachers. The approach evolved over time to incorporate the following procedures:

1. Teach for 5 minutes.
2. Read written directions
3. View model tape.
4. Teach for 5 minutes.
5. Receive feedback from supervisor.
6. View another model tape.
7. Teach for 5 minutes.
8. Receive feedback from supervisor.
9. View another model tape.
10. Teach for 5 minutes.
11. Receive overall feedback from supervisor.

This approach is particularly useful for those teaching skills that involve a teacher in front of a group of students (as opposed to a teacher working informally with a small group of students). In the

Stanford Approach it is necessary for the 4 to 8 micropupils to act as they would normally act in a regular classroom. The trainee in this case is asked to prepare a microteaching lesson and teach that lesson to the micropupils.

Affective-Emotional Approach. This approach is similar to the Stanford Approach in structure, except that the teacher acts as a coequal member of the group. All individuals in the microteaching lesson work simultaneously on developing interpersonal skills. A key element is an awareness of the other members of the group and how they respond emotionally to each other. The approach assumes that good teachers need to be able to relate to students (and others) as persons. Feedback sessions are held with the whole group with the supervisor to maximize the flow of ideas and to emphasize learning how to develop these skills. Video tape playbacks of the sessions are also used to isolate particular skills that need to be developed more fully.

Role-Playing Approach. As with the affective-emotional approach, the role playing approach uses the same basic structure as the Stanford Approach. The difference is in the role of the pupils who are instructed on how to act during the microteaching lesson. To facilitate the learning that role playing provides, the students may be insructed to ask naive questions. Or, they may be asked to respond only to "good" questions (by some specified criteria), so as to encourage the trainee to work harder at learning to ask good questions.

The structure of these three approaches to microteaching are not all that different: small groups, video taping, modeling, practice, and feedback are employed in all of them. The particular needs of the trainees and the skills to be practiced must determine the choice of the approach to be used

TEACHING SKILLS

Microteaching is most effective when the trainee has to learn a predefined skill. A number of useful teaching skills which have been successfully taught in microteaching settings are described below. The name of the person to whom credit is due for developing the skill for microteaching is indicated, and the particular microteaching approach that the authors believe to be most appropriate for each skill is shown.

Readers of this list should have in mind the objectives of their teaching and the methods they will apply to reach those objectives. They may also wish to pick out skills that would improve their effectiveness and enhance their level of comfort in the classroom. Further, they are encouraged to select an approach/skill combination and try it out in a microteaching session.

Reinforcement (M. E. J. Orme) (Stanford Approach). To increase desired behavior in the classroom, the instructor should praise desirable behaviors. Hence, the teacher practices using a variety of praise techniques: smiles and nods (non-verbal) or verbal comments such as "good idea" or "well done." The teacher learns the value of reinforcement, how it works, and how to develop various ways of reinforcing particular behaviors. It is important to emphasize those reinforcers that are appropriate for the trainee.

Stimulus Variation (M. E. J. Orme) (Stimulus Approach). Stimulus variation describes the process of moving about the classroom and gesturing in order to increase pupil attention. Besides movement, position, and gestures, the trainee works on situations where novelty, complexity, and intellectural tension can produce increased attention by students.

Lecturing (Allen and Ryan, 1963) (Stanford Approach). This particular skill involves bringing together the components of lecturing. Teachers should speak clearly, use the chalkboard and audiovisual materials properly, and have a style of presentation that is not confusing to students. Logical presentation of topics and ideas is stressed, and stance and position in the classroom are also practiced.

Inquiry Training (J. Richard Suchman) (Stanford Approach). Learning by inquiry is the process of allowing students to discover the concepts and principles of the content area on their own. Teachers are trained in developing an environment in which this can occur. Particular types of questioning skills are used to cause students to think critically and inquiringly about the content area. Some non-verbal skills of communication are also taught.

Interpersonal Communication Skills (T. Gregory and M. Englander). (Affective-Emotional Approach). To develop good rapport with students, a good teacher must be able to communicate with them on a level that shows honest interest in their learning. This skill is designed to let the teacher practice the communication of feelings with students and works against the notion of ivory tower instructors out of touch with reality. Some of the components involved are: empathizing, being genuine, being concrete, expressing feelings, and paraphrasing.

Still other skills can be identified and taught in microteaching. Such skills that are not unique to a particular approach include divergent questioning, set induction, use of silence and non-verbal cues, use of examples, use of planned repetition and completeness in communication. These are mentioned briefly to demonstrate the versatility of microteaching as a vehicle for developing effective teaching skills.

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DO'S AND DON'TS

Do	Don't
Practice teaching skills in a microteaching situation that is low risk and provides an opportunity for feedback on your teaching.	Go into a class "cold" without practicing some critical teaching skills.
Plan to periodically video your teaching and have it critiqued by someone along with you.	Consider one microteaching session enough.
Work on one teaching skill at a time when engaging in microteaching.	

EXERCISES

1. Make a list of the teaching skills you would like to develop through microteaching. Explain what shortcomings you think might be improved under each category.

2. Arrange to do a microteaching session with your campus microteaching facility if there is one; if none exists, determine if arrangements might be made through the School of Education to do a microteaching session. If this is not possible either, organize a group of fellow students or friends to act as micropupils while you do your microteaching.

3. Describe what suggestions emerged from the comments provided to you by your micropupils and/or your microteaching supervisor.

4. To what extent did you think you were able to improve your skills based on the comments provided to you?

5. What did you learn from watching the videotape of your microteaching session? Did you gain anything from watching the videotape that you would not have gained from the comments of your micropupils and/or microteaching supervisor?

Chapter 15

INTERPERSONAL COMMUNICATION SKILLS: EMPATHY AND GENUINENESS

Loren T. Liebling and Kenneth Majer*

NEEDS

"What we have here is a failure to communicate." This line from an old movie is applicable to countless classroom situations. Most teachers consider themselves competent when it comes to the subject matter of the discipline; they make a serious effort to prepare for their classes; and they adhere scrupulously to office hours. Still they oftentimes sense that "something" is missing between the students and themselves. Students at times appear to be apathetic or even hostile. Teachers, in turn, become frustrated and angry. The net result is a mutually unsatisfying experience. Why do these situations develop? There is no definitive answer to this question, but a contributing factor is often teachers' lack of awareness of both their own and their students' "feelings."

GOALS

The goal of this chapter is to introduce two skills of interpersonal communication to enable teachers to identify and deal with the feelings of themselves and their students. "Empathy" refers to the means by which we identify and deal with students' feelings. "Genuineness" refers to the means by which we identify and communicate our own feelings as teachers.

OBJECTIVES

COGNITIVE OBJECTIVES

1. After carefully reading this chapter you will be able to:
    a) identify two "feelings" that are commonly experienced in the classroom;
    b) demonstrate skill in identifying and communicating your students' feelings;
    c) demonstrate skill in identifying and communicating your own unexpressed feelings;
    d) list 4 MYTHS that supposedly impede a teacher's efforts to teach with feeling.

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*This paper, prepared for the 1973 Summer Workshop on the Teaching of College Economics, has been edited and adapted to fit the format of this edition of the Manual.

(Objectives continued)

AFFECTIVE OBJECTIVES

1. After carefully reading this chapter and completing the exercises, it is intended that you will:
    a) be aware of the importance of attending to personal feelings that may be detrimental to affective functioning in a college class;
    b) recognize the importance of expressing feelings by using feeling words in your own classroom communication.

OUTLINE OF MAIN POINTS

Empathy: Identifying and Communicating Your Students' Feelings

Genuineness: Identifying and Communicating Your Own Unexpressed Feelings

Thoughts and Feelings

Conclusion

References and Suggested Readings

Do's and Don'ts

Exercises

INTERPERSONAL COMMUNICATION SKILLS: EMPATHY AND GENUINENESS

EMPATHY: IDENTIFYING AND COMMUNICATING YOUR STUDENTS' FEELINGS

Teachers and students are continually acting and reacting on the basis of their feelings. In spite of this, the accepted rules of the teaching-learning game generally preclude teachers from attending to the feelings that motivate student behavior. Yet it is important to become aware of these feelings because sometimes they are detrimental to the effective functioning of an entire class or of an individual student. By communicating these feelings the detriment can often be overcome.

> Example 1 - Teacher: I spent a lot of time thinking about your mid-term evaluations of this course. A good number of you are unhappy with my style, particularly the amount of time I spend lecturing. Any comments?

The teacher in this example is aware of students' feelings in his class and is showing his concern in a constructive, positive manner. He is probably also aware that if he doesn't address himself to the concerns revealed in the mid-term evaluation, the situation is likely to get worse. Bringing student feelings out into the open is an important step in building the foundation upon which individual integrity, mutual respect, and student interest can be established and maintained. Remember, empathy is identifying the feelings expressed in the students' words and actions and then communicating those feelings back to them. If teaching is viewed as a process of helping one to learn and share information, then empathy and communication are key ingredients in that teaching process.

Contrast the empathic approach in example 1 to the following:

> Example 2 - Teacher: There are fewer and fewer faces here lately. Let me remind you all of the University regulations regarding cutting. After the third cut in a semester, the grade may be lowered by as much as one grade, at the instructor's discretion. I'm not a hard-nose on these things, but let's not abuse my good nature.

The threat implied by the teacher may in fact improve attendance, but it is unlikely to do much to foster an atmosphere conducive to learning. The reason why students are cutting class is still unresolved. The failure to acknowledge students' feelings has prevented positive interaction and widened the communication gap between the teacher and his students. It would have been far better if the teacher had recognized that there were feelings present that weren't being expressed, communicated his awareness of those feelings to the students, and responded to them in a positive fashion. If he had done so, he would have undoubtedly brought himself closer to the students and made them more receptive to his concern -- learning economics. He might also have found out that his initial interpretation of his students' latent feelings was incorrect, and that a discussion of their feelings could clarify his understanding.

GENUINENESS: IDENTIFYING AND COMMUNICATING YOUR OWN UNEXPRESSED FEELINGS

To develop a good relationship with his students, a teacher ought to be genuine. Within the context of teaching, being genuine includes the efforts a teacher makes to reveal his humanness by sharing his feelings with his students.

When describing some of the problems a teacher encounters as he attempts to be genuine, Greenberg (1969) identifies a number of popularly held myths that impede a teacher's efforts to teach with feeling. Several of them constitute a group of premises which a teacher must reject if he is to be genuine.

> The MYTH of Calmness: The teacher should behave calmly and cooly at all times.
>
> The MYTH of Moderation: The teacher's feelings should be subdued, especially those that are the most intense, deep, and painful.
>
> The MYTH of Liking All Students: The teacher should like all students identically, having no dislikes for specific students or specific behaviors in students.
>
> The MYTH of Hiding One's True Feelings from Students: The teacher, with an effort, can stop students from knowing how he really feels

What follows is an observation from a student about a teacher who taught while accepting these myths:

> I remember going to a club one night during the winter of my junior year and seeing my teacher. I was appalled -- I mean, there he was laughing, excited, even drinking and dancing. Until that time I just never considered that he existed outside of the classroom. Anyway that was my first realization that we were both humans and both had feelings and this barrier between us shouldn't exist.

The converse to Greenberg's collection of myths would go something like this: Teachers are real people with human feelings, many of which are difficult or impossible to hide even from the most unsophisticated student. Teachers are most effective when they reveal their humanness by openly sharing those feelings with their students. Teachers are at their best when they are not trying to be "teachers" hiding behind a role. Teachers are being most human when they are being most genuine.

Let's look at some examples. Again a reminder, Genuineness is identifying the feelings that you have and communicating them to your students.

When a teacher expresses his hurt when it hurts, when he expresses his joy when he is joyous, he is taking the important but difficult first steps toward becoming genuine. Two basic steps are necessary to achieve genuineness. A teacher must first be honest with himself. He must "listen" for his feelings. If a teacher is not aware that he is being defensive for example, it's impossible to take corrective measures. The second step is to be honest with the students. He must communicate these feelings to them.

Example 1: S: ...You come on so strong with all that moralistic stuff about good this and bad that. Well let me tell you that it's all goin' in one ear and out the other.

T: Obviously, what you've just said bothers me, Bonnie. So much so that I'm not sure just what to say. I guess the thing that upsets me most is that I'd really like to be someone you consider important, but I don't know what I've been doing or saying that's brought this on.

S: Well, I'd like to feel like you judged me less and listened more.

T: I feel bad that I've misunderstood you. I'd feel better if you knew I was going to try to be more in tune from now on.

S: Well, O.K.

The teacher responded with his own feelings and he seems to really mean what he says. He is able to employ his responses, whatever their emotional content, as a basis for further communication in the relationship.

Example 2: T: Well that concludes this section of the course. I'd be interested to hear what you thought of it.

S: Do you really want to know?

T: (uncertainly) Yes, of course!

S_1: O.K., I thought it was boring.

S_2: There was some good to it but mostly it was a waste of time.

T: I feel a bit disappointed hearing you say these things.

S_3: I thought you wanted to hear this.
T: Yes, I did, and I'm glad of it but I still feel a disappointment. Tell me some other things. (discussion continues)

The teacher has shown his humanness and sincerity.

Example 3: T: So who believes he can answer this question? (silence) Anyone? (silence) John?
J: I'm not sure.
T. Beth?
B: I don't know.
T: You know, I get angry as hell when you don't respond to my questions. I'm not saying its your fault, I just feel angry.
S: I'd feel angry too I suppose.
T: Where is the breakdown in this process? I feel there is an inadequacy in me or maybe in the process as a whole. What do you think? (discussion continues)

Using the above examples and points of view, you have been presented with a technique. For most people, it's a difficult technique to adopt because it places you in a vulnerable position. It is difficult to share our feelings even in the most safe, comfortable, environment let alone in a sometimes threatening classroom setting.

Perhaps it will be helpful to examine the threatening nature of the classroom. The situation is composed of many unknowns, several of which can be alleviated by being genuine. A good example is the teacher who walks into his class the first day and is feeling very nervous and uncomfortable. He starts out the class by saying, "I feel kind of nervous and uncomfortable today." In a sense, he's letting his students into part of him. What do you think the student reaction would be? We believe that they will loosen up and feel more comfortable with the teacher because he has shown them that he, too, is human.

THOUGHTS AND FEELINGS

Empathy and genuineness are two skills which can best be used together. In the classroom it would be difficult to separate them into two distinctly different skills. They are both concerned with identifying and expressing feelings. They are different only in this simple way; empathy has to do with others and genuineness has to do with self.

This may sound easy and something you do every day; but when you think about it a bit more, you see that you are usually identifying and expressing thoughts and not feelings. Another definition is in order.

For our use, a thought is how you intellectually analyze a stimulus; a feeling is how you emotionally react to a stimulus. We can be sure that a person is expressing a feeling reaction by seeing if he uses a feeling word in his sentence. These are simply words which describe feelings such as angry, frustrated, hurt, excited, happy, sad, glad, lonely, upset, bored, etc.

You can use these skills when you're having trouble getting to your students, when you think your students are not with you, or when you think you are not with your students. These skills can be used with individual students or with whole classrooms. They should be used because it will make you feel better about what you're doing and what the students are doing, and it will make the students feel better about what you're doing and what they're doing.

CONCLUSION

We have stated that empathy is identifying the feelings expressed in the students words and actions and then communicating those feelings back to him, and that genuineness is identifying the feelings that you have and communicating them to your students. These are not very academic definitions but they're understandable and workable.

These two interpersonal communication skills are designed to increase your comfort and effectiveness as a classroom teacher. During the exercise sessions which follow you will be asked to practice using these skills. You definitely won't use these skills all the time in your classroom, but during these sessions, you should practice using them as much as possible. Try them out and see if you would be comfortable using them in the classroom as part of your own teaching style.

REFERENCES

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Truax, C. B., Effective Ingredients in Psychotherapy, Journal of Counseling Psychology, 1963, 10, 256-263.

DO'S AND DON'TS

DO	DON'T
Identify and pay attention to the feelings students have in your classroom.	Be closed off and aloof from your students as people.
Practice expressing your own feelings when teaching.	Assume that content precludes feelings that people have.
Remember that unexpressed feelings may be a detriment to learning.	Remain so aloof that you are perceived as having no human feelings when you are teaching.

Empathy-Genuineness
Exercise 1

For each of the following situations, a number of different teacher statements or responses are presented. Some statements (responses) are empathic, some are genuine, and others are alternative responses which do not conform to either of the definitions of empathy and genuineness presented in these materials.

Using E or G, mark each statement (response) that is empathic or genuine. Use 0 to mark any statement (response that is neither empathic or genuine.

Situation 1: T: I spent a lot of time thinking about your mid-term evaluations of this course. A good number of you are unhappy with my style, particularly the amount of time I spend lecturing. Any comments?

S: I'm just getting tired of sitting here taking notes all of the time. Couldn't we cover the material in different ways, like discussion?

_____A. T: If we spend all our time in discussion, we couldn't cover all the material.

_____B. T: This material is difficult and there's no sugar-coated way to present it. Given that fact, do you really think discussions would work?

_____C. T: Group discussions are certainly one good approach. I guess what you're really telling me is that you are unhappy with one approach. And more important, that you want approaches that involve you more directly.

_____D. T: Group discussion might be a very good technique, but only if all of you are willing to take responsibility for what happens. Otherwise, it'd fall flat on its face.

_____E. T: It makes me feel good to hear you come up with positive suggestions. Do any of the others of you have any ideas? Maybe we can come up with some other approaches and see where they might fit in.

Situation 2: T: Well Tom, I haven't seen you in my office in a long time. What can I do for you?

S: Dr. Wood, I'm afraid I'm going to have to ask for an extension for that paper due Friday.

______A. T: You seem embarrassed to ask. Do you think I'm that unreasonable?

______B. T: I think you're the fourth student this morning to make that request. When are you students going to take this work seriously?

______C. T: I'm really angry with your request. You must be the fourth student I've seen today on the same matter. I really thought I had made my expectations quite clear. Where is the problem for you?

______D. T: You know I really ought to write something for Reader's Digest, something like "My Most Unforgettable Excuse." Anyway, what's yours, Tom?

______E. T: Tom, it makes me very unhappy to give extensions. You must be under a lot of pressure to risk my bad humor. What exactly is your problem?

Key for Part I:

Situation 1 A - O; B - O; C - E; D - O; E - G.

Situation 2 A - E; B - O; C - G; D - O; E - E and G.

Empathy-Genuineness
Exercise 2

In each of the following situations the instructor manages to shut off any further communication with his students. Yet, in each instance, the instructor might well have employed empathy, genuineness, or a combination of both. Answer the questions for each of the situations.

Situation 1: T: We're about mid-way into the semester now. Do any of you have any comments on what's being taught or how it's taught? Any problems with where we're going?

S: I have one.

T: Yes. Could you share it?

S: Well, it's like this. We've been bombarded with material, but I don't yet have a sense of how it all fits together.

T: Don't you think that sort of synthesis is the student's responsibility?

S: Yes, in part. But obviously, you're the one with the expertise. I wish you could spend more time tying things together.

T: In effect, you're asking me to spoonfeed the material and the answer is no. It's your responsibility, Tom, to evaluate and integrate the ideas presented here. After all, this isn't an introductory course.

What, specifically, did the instructor say to discourage further communication?

What do you suspect the instructor was feeling?

How might the instructor have expressed his own feelings more genuinely?

What do you believe the student was feeling?

How might the instructor have reacted more empathically to the student?

Situation 2:
T: There are twenty-six people in this class and only eight projects on my desk. What gives?
S: That Section C really threw most of us for a loop.
T: Well, why didn't you bring that up?
S: Several of us wanted to bring it up last Tuesday, but time ran out before you could explain it.
T: Well, it's not enough to bring it up in class. If you don't understand the work it's your responsibility to make an appointment to discuss it. There's really no excuse for this.

What, specifically, did the instructor say to discourage further communication?

What do you suspect the instructor was feeling?

How might the instructor have expressed his own feelings more genuinely?

What do you believe the student was feeling?

How might the instructor have reacted more empathically to the student?

Situation 3:

T: Nancy, we haven't heard from you in a long while. Could you please summarize Galbraith's ideas on the future of the industrial system?

S: I'm afraid I can't. I didn't get to that particular reading. I'm sorry.

T: I'm sorry too. You folks don't want me to lecture but you don't leave me any choice if you're not prepared for discussion. What am I supposed to do? Well, let's not waste any more time.

What, specifically, did the instructor say to discourage further communication?

What do you suspect the instructor was feeling?

How might the instructor have expressed his own feelings more genuinely?

What do you believe the student was feeling?

How might the instructor have reacted more empathically to the student?

Situation 4: T: This class is just about over. Are there any comments any of you would like to make?

S: Why does the course have to be so theoretical? Most of us are non-majors; this is just a requirement for graduation. Yet the course is designed as if we intended to become scholars in the area. Why can't we gear the course more to our own interests?

T: What can I say? You read the course description at registration, maybe before that. You can't say you didn't know what you were getting into. Perhaps this course isn't for you. Maybe you should think of withdrawing.

What, specifically, did the instructor say to discourage further communication?

What do you suspect the instructor was feeling?

How might the instructor have expressed his own feelings more genuinely?

What do you believe the student was feeling?

How might the instructor have reacted more empathically to the student?

Situation 5: T: I was looking over the mid-term course evaluations last night. There was one thing that really surprised me. Almost none of you wrote anything in the open comment section. Someone must have something to say. Why the reticence?

S: I think I have a very general reason.

T: What is it?

S: It's not a function of you or this class in particular, but I think most students are a bit suspicious of evaluations. No matter how anonymous they're supposed to be, there is always that nagging feeling that the evaluations might be used against you in some way.

T: I can't honestly believe that you accept that. You don't really feel that instructors around here are such hypocrites? I'm surprised at such a statement.

What, specifically, did the instructor say to discourage further communication?

What do you suspect the instructor was feeling?

How might the instructor have expressed his own feelings more genuinely?

What do you believe the student was feeling?

How might the instructor have reacted more empathically to the student?

Empathy-Genuineness
Exercise 3

Directions: The following exercises are designed to accompany two ten-minute videotapes on interpersonal communication skills. The tapes are designed as stimulus materials to supplement the chapter and written exercises concerning genuineness and empathy.

Segment I: Instructor and Class

View tape. Divide into groups of four. Two members are to observe students; two to observe the instructor. View tape again, listing all feelings expressed or implied in tape.
Discussion questions for group:
How did it feel to be a student in this class?
How did it feel to be a teacher in this class?
What examples of empathy and genuineness did you note?

Segment II: Instructor and Supervisor

View tape looking for instances of empathy and genuineness by supervisor and instructor. Divide members into pairs. One person should practice being supervisor, the other instructor. Instructor should initiate the issue of students receiving low grades on quiz. After five minutes, reverse roles. Give feedback and compare experiences. Pairs should go back to group and list at least three other issues or situations which might arise in a college classroom where empathy and genuineness might be especially appropriate.

Segment III: Instructor and Class

View tape to again observe empathy and genuineness on part of instructor and students.
Discussion questions:
How does this segment compare to the first?
What are the major differences in the student's and instructor's feelings and expressions?
Groups of four should join together to form groups of eight. Choose one member to be the instructor and at least one to be an observer. Role play one of the situations listed in the previous exercise. Observer should note instances of genuineness and empathy. As time permits, give other members opportunity to role play situations in the group.

APPENDIX I

1973 TEACHER TRAINING CONFERENCE FOR INSTRUCTORS OF COLLEGE ECONOMICS

Indiana University, Bloomington, Indiana
Schedule of Activities

	Date	Session Number	Topic	Activity	Speaker
MON	July 30 (morning)	1	Welcome Remarks Introduction	Overview Instructional Model	M. L. Frankel Arthur Welsh Kenneth Majer
		2	Learning Theory	Presentation plus exercises	Nicholas Anastasiow
	(afternoon)	3	What is a Principles Course in Economics?	Presentation plus exercises	G. L. Bach
	(evening)	4	Introduction to Micro-teaching	Familiarization with equipment and methods Microteaching	Michael Orme and staff
TUES	July 31 (morning/ afternoon)	5-6	Instructional Objectives for Economists	Presentation plus exercises	Kenneth Majer
	(afternoon/ evening)	7	Observational Analysis	Presentation plus exercises	Darrell Lewis
WED	August 1 (morning/ afternoon)	8-9	Sequencing, Task Analysis, Assumptions About Learning Economics	Presentation and exercises	Ivor Davies
	(evening)	10	Instructional Method: Media	Presentation and exercises	Dennis Pett
THURS	August 2 (monring/ afternoon)	11-12	Student Cognitive Evaluation and Testing	Presentation and exercises	J. Jaap Tuinman

	Date	Session Number	Topic	Activity	Speaker
THURS	(evening)		Open Laboratory*	Familiarization with equipment and methods Microteaching	Michael Orme and staff
FRI	August 3 (morning)	13	Student Cognitive Evaluation and Testing	Evaluation Contest	J. Jaap Tuinman
	(afternoon)	14	Classroom and Student Affective Evaluation	Presentation and exercises	Lee Hansen Allen Kelley
	(evening)		Banquet		
SAT	August 4 (morning/ (afternoon)		Open Laboratory*	Familiarization with equipment and methods Microteaching	Michael Orme and staff
SUN	August 5 (afternoon)		Picnic		
MON	August 6 (morning)	15	Instructional Method: Lecture	Presentation plus video tape exercises	Phillip Saunders
	(afternoon)	16	Instructional Method: Interpersonal Communications Skills	Presentation plus video tape exercises	Beryl Brown
TUES	August 7 (morning)	17	Instructional Method: Case Method; self-paced instruction	Presentation plus exercises	Rendigs Fels
	(afternoon)	18	Instructional Method: Synthesis and Alternatives	Seminar	Arthur Welsh Beryl Brown
	(evening)		Open Laboratory*		

	Date	Session Number	Topic	Activity	Speaker
WED	August 8 (morning)	19	Research in Economic Education	Presentation Distinguished Panel	Darrell Lewis Kelley, Welsh, Lewis, Saunders, Hansen, et al.
	(afternoon)	20	Team Work Session		Staff
	(evening)	21	Team Work Session		Staff
THURS	August 9 (morning)	22	Group Presentations of Instructional Sequences by Participants	Group presentation and reaction	Participants and staff
	(afternoon)	23	Evaluation of Instructional Sequences	Discuss and evoke criteria	Participants and staff
FRI	August 10 (morning)	24	Implementation and evaluation of Workshop		Welsh, Participants and staff
	(noon)		Luncheon		James Weigand
	(afternoon)		Depart		

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*Those periods listed as "Open Laboratory" are slack times purposefully left for optional activities that may run over from daily presentations and/or times when participants can use equipment such as: video tape, etc.

TEAMS AND ASSIGNMENTS

During the two weeks of this conference you will be working with each other on one of six teams. The team assignments have been made ahead of time although you can be assured there was no incipient motive to place certain universities together. We simply wanted to ensure about the same size and proportion of faculty and graduate student team members. The team assignments are listed below:

Team 1

Duke
North Carolina
North Carolina State
Vanderbilt

Team 2

Illinois
Iowa
Purdue

Team 3

Harvard
Nebraska
Wisconsin

Team 4

Minnesota
Missouri

Team 5

Berkeley
Florida State
Windsor

Team 6

Indiana

Each team will be expected to produce a micro instructional package during the next two weeks incorporating the skills and procedures that are being taught during the formal presentation sessions. These instructional packages will be presented by the teams on Thursday, August 9. The final product will be a completed unit that can be implemented within a principles of economics course at your home institution. The assignment for each team is to use any economics text the team selects as appropriate for a content base and to develop an instructional sequence that incorporates the following:

(1) A statement of needs
(2) A statement of goals
(3) An explicit list of instructional objectives
(4) A task analysis
(5) An application of instructional media
(6) Student evaluation procedures (cognitive and affective)
(7) Course evaluation procedures
(8) Schedule of instructional activities

Items (1) and (2) may be short (one or two paragraphs each). Items (3), (4), and (8) shall be integrally related. That is, for each section of the task analysis there shall be corresponding instructional objectives that, in turn, have corresponding specific instructional activities (presumably item 5 will be incorporated in 8). Items (6) and (7) shall include procedures as well as specific examples of evaluation items or instruments.

If you have any questions regarding the assignment feel free to ask Dr. Majer, Dr. Saunders, or Dr. Welsh for clarification.

PARTICIPANTS

(F = Faculty, GS = Graduate Student)

Robert F. Allen, University of Nebraska (F)
Elizabeth Allison, Harvard University (F)
William F. Becker, Jr., University of Minnesota (F)
Jerry Bodily, Purdue University (GS)
Donald Bonney, University of Iowa (GS)
William Carpenter, University of California, Berkeley (GS)
William S. Cartwright, Indiana University (GS)
Thomas H. Cate, Florida State University (GS)
Dave Cavander, University of Iowa (GS)
Elise Chapman, Indiana University (GS)
James Eaton, University of Missouri (GS)
Ann M. Eike, University of Missouri (GS)
Gene D. Guill, Duke University (GS)
Richard Hansen, University of Nebraska (GS)
Curt Huttsell, University of Nebraska (GS)
Dan Kauffman, University of Nebraska (GS)
Mark Kloc, Indiana University (GS)
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Bruce Vermeulen, University of California, Berkeley (GS)
John T. Warner, North Carolina State University (GS)
Dennis Weidenaar, Purdue University (F)
Devon L. Yoho, University of Missouri (GS)

SUPPORTING STAFF

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PROFESSIONAL STAFF AND GUEST LECTURERS

Nicholas J. Anastasiow, Professor of Education, Indiana University

G. L. Bach, Frank E. Buck Professor of Economics and Public Policy, Stanford University; Chairman, American Economic Association Committee on Economic Education

Beryl E. Brown, Lecturer in Education, Indiana University

Ivor K. Davies, Professor of Education, Indiana University

Rendigs Fels, Professor of Economics, Vanderbilt University: Secretary-Treasurer, American Economic Association

M. L. Frankel, President, Joint Council on Economic Education

W. Lee Hansen, Professor of Economics, University of Wisconsin

Allen C. Kelley, Professor of Economics, Duke University

Darrell R. Lewis, Professor of Economic Education, University of Minnesota

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J. Jaap Tuinman, Associate Professor of Education, Indiana University

James E. Weigand, Professor of Education, Indiana University

Arthur L. Welsh, Director, College and University Program, Joint Council on Economic Education

APPENDIX II

SCHOOLS WITH TRAINING PROGRAMS IN TEACHING ECONOMICS AND SELECTED SAMPLE SYLLABI

School	Resource Person	Type of Program
Cornell University	Peter McClelland	Intensive program prior to the beginning of classes, followed by periodic meetings throughout the semester for graduate students already selected to teach.
* Duke University, University of North Carolina and North Carolina State University "Triangle" Program	Allen C. Kelley	Intensive three-day program with emphasis on selected aspects of the learning-teaching process for graduate students who are not yet teaching as well as for those who are teaching concurrently.
* Harvard University	Elizabeth Allison	Intensive two day program with primary emphasis on video taping and critique of lecture presentations of graduate students already selected to teach.
* University of Illinois	Donald Paden	Intensive program prior to the beginning of classes, followed by periodic meetings throughout the semester for graduate students already selected to teach. The sessions are conducted by the Office of Instructional Resources, with the help of the Department of Economics.
* Indiana University	Phillip Saunders	Semester-long seminar for graduate credit on most aspects of the learning-teaching process for graduate students who have not yet been selected to teach.

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* Indicates Syllabus Follows.

School	Resource Person	Type of Program
Lehigh University	Bruce Dalgaard	Intensive five day session before classes begin for graduate student instructors in cooperation with learning resource specialists, followed by periodic meetings during the semester emphasizing video taping followed by individual consultation and evaluation.
*University of Missouri	Steven Buckles	Year-long seminar for graduate credit on most aspects of the learning-teaching process required for all graduate student teaching assistants.
*University of Minnesota	William Becker, Jr.	Seminar and classroom observation program required of all beginning graduate student instructors. Described in May 1976, Amer. Econ. Rev., Proc, pp. 229-233.
University of Nebraska	William Gilles	Brief intensive session followed by year-long seminar for new Ph.D. candidates who are teaching economics. Two hours credit given.
Northern Illinois University	John Soper	Intensive session on selected aspects of the learning-teaching process, followed by periodic meetings throughout the semester for graduate students already selected to teach.
*Purdue University	Dennis Weidenaar	Two day intensive session before classes begin required for all new graduate student instructors on selected aspects of the learning-teaching process. In class video

School	Resource Person	Type of Program
Purdue University (con't.)	Dennis Weidenaar	taping and student evaluation questionnaires administered during the semester, followed by a concluding session at the end of the semester to review evaluation results.
* University of Wisconsin-Madison	W. Lee Hansen	Intensive one day training session for discussion leaders using University of Michigan "Trigger Tapes."
* University of Wisconsin-Madison	W. Lee Hansen	Semester-long seminar for graduate credit on most aspects of the learning-teaching process for graduate students who are not yet teaching as well as those who are teaching concurrently.

TEACHER TRAINING PROGRAM

Department of Economics

Duke University
North Carolina State University
University of North Carolina

Held at
Duke University
Board of Trustees Room
Durham, North Carolina 27706

April 20-22, 1978

PROGRAM

Thursday, April 20

9:00-9:30 Introductions, Workshop Objectives	Allen C. Kelley
9:30-10:30 Taped Mini Lectures	Elizabeth Allison W. Lee Hansen Arthur Welsh
10:30-11:00 Coffee Break	
11:00-12:30 How to Plan a Course Course and Unit Objectives Getting the Pieces Together Evaluating What You Have Done	W. Lee Hansen Arthur Welsh
12:30-1:30 Lunch	
1:30-3:00 Critiques of Taped Mini Lectures	Elizabeth Allison
3:00-3:30 Coffee Break	
3:30-5:00 Fundamentals of Classroom Presentation The Beginning Examples, Numbers and Graphs Fielding Questions	Elizabeth Allison

Friday, April 21

9:00-10:15 Organizing and Leading a Discussion Session I	W. Lee Hansen
10:15-10:45 Coffee Break	
10:45-12:00 Organizing and Leading a Discussion Session II	W. Lee Hansen
12:00-1:30 Lunch	
1:30-3:00 Course Assessment—Formulation and Evaluation of Examinations I	Arthur Welsh
3:00-3:30 Coffee Break	
3:30-5:00 Course Assessment—Formulation and Evaluation of Examinations II	Arthur Welsh

Saturday, April 22

9:00-10:15
Methods of Lecturing I — **Phillip Saunders**
Objectives, Goals and Strategies
Principles of Learning Theory

10:15-10:45
Coffee Break

10:45-12:00
Methods of Lecturing II — **Phillip Saunders**

12:00-1:00
Lunch

1:00-2:15
Post Taping of Mini Lectures I — **Workshop Staff**

5:00
Workshop Picnic for all Staff and Participants at the Kelley's on Chicopee Trail — Beer and Southern Cooking

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The Teacher Training Program (TTP) has been jointly developed by the Committee on Economic Education of the American Economic Association and the Joint Council on Economic Education of New York City. The Program has been funded by the Alfred P. Sloan Foundation. The TTP manual has been compiled by Arthur Welsh, W. Lee Hansen and Phillip Saunders. The Advisory Board of the TTP includes G. Lee Bach, Stanford University, James Buchanan, Virginia Polytechnic University, Rendigs Fels, Vanderbilt University, the late Aaron Gordon, University of California-Berkeley, Walter Heller, University of Minnesota, and George Stigler, University of Chicago.

WORKSHOP STAFF

Elizabeth Allison, Ph.D., Harvard University. Research fields include labor economics, macro economics, and economic education. Dr. Allison is presently Associate Professor of Economics, Harvard University. She has been on the Advisory Committee of the Danforth Faculty Fellows Program, a member of the Committee on Economic Education of the American Economic Association, and a member of the Advisory Board of the *Journal of Economic Education.*

W. Lee Hansen, Ph.D., Johns Hopkins University. Research fields include labor economics, human capital economics, and economic education. Professor Hansen has held positions at the University of California at Los Angeles, and the President's Council of Economic Advisors. He is presently at the University of Wisconsin-Madison. In economic education he has been a member of the Committee on Economic Education of the American Economic Association, the Advisory Board of the *Journal of Economic Education,* the Master Curriculum Guide Task Force, and a Trustee of the Joint Council on Economic Education.

Allen C. Kelley, Ph.D., Stanford University. Research fields include economic development, demographic economics, and economic education. Professor Kelley has held positions at Stanford University, University of Wisconsin-Madison, Australian National University, and the Rand Corporation. Presently he is Chairman of Economics, Duke University. He is Chairman of the Committee on Economic Education, a member of the Advisory Board of the *Journal of Economic Education,* and Principal Investigator of the Teaching Information Processing System (TIPS) Project.

Phillip Saunders, Ph.D., Massachusetts Institute of Technology. Research fields include labor economics and economic education. Professor Saunders has held positions at Bowdoin College and Carnegie Mellon University. Presently he is Associate Dean of Arts and Sciences at Indiana University. In economic education he has been Director of the Lasting Effects Project, Consulting Economist for the Agency for Instructional Television Series, Co-Director for the TUCE revision, member of the Committee on Economic Education of the American Economic Association, member of the Advisory Board of the *Journal of Economic Education,* and member of the Master Curriculum Guide Task Force.

Arthur Welsh, Ph.D., University of Illinois. Research fields include public finance, industrial organization, and economic education. Dr. Welsh's previous positions include University of Iowa, and Associate Director of the Bureau of Economic Research (Iowa). Presently he is Program Director of the Joint Council on Economic Education. He has been the Principal Investigator of the Teacher Training Program, Staff Director of the TUCE (Test of Understanding College Economics), and Co-Director of the TUCE revision.

HARVARD UNIVERSITY PRE-SERVICE PROGRAM

EC. 10 Teacher Training Seminar*
September 15-16, 1977

Thursday, September 15

8:30-9:00	Graduate REGISTRATION, Memorial Hall
9:30-9:45 Room 17	INTRODUCTION --- Overview of the Seminar Schedule (Robby Moore)
9:35-10:30 Rooms 417, 418, 419	MICROTEACHING SESSION I (Videotape opening 4 minutes of "Supply and Demand" lecture and 4 minute numerical/graphical example)
10:30-10:45 Snackbar Penthouse	Coffee Break
10:45-11:45 Room 17	HINTS ON PREPARING A LECTURE (Robby Moore)
11:45-12:00 Room 17	Comment on "Hints on Preparing a Lecture" (Jeff Wolcowitz)
12:00-1:00 Snackbar Penthouse	Lunch
1:00-1:30 Room 17	TIPS ON DELIVERY (Professor Richard Caves, on videotape)
1:30-2:30 Room	SOME MORE SPECIFIC TIPS ON DELIVERY (Kim Clark)
2:30-2:45 Snackbar Penthouse	Break
2:45-4:00 Rooms 417-419	MICROTEACHING SESSION II (Critical review of morning videotapes)
4:00-4:15 Room 17	What to Prepare for Friday

(schedule continues on back)

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*To be held at Hilles Library, Radcliffe Quad. Schedule still subject to minor changes.

Ec. 10 Teacher Training Schedule (continued)

FRIDAY, SEPTEMBER 16

9:00-9:15 Room 17	Outline of the day's activities
9:15-12:00 Rooms 417-419	MICROTEACHING SESSION III (Videotaped practice of various teaching skills using first two lectures of the semester; there will be a break around 10:30)
12:00-1:30 Currier House Private Dining Room	Lunch (returning section leaders also invited)
1:30-2:30 Rooms 417-419	MICROTEACHING SESSION III (continued)
2:20-3:00 Room 17	ALTERNATIVES TO LECTURING: PREPARING A "NON-LECTURE" SECTION (Robby Moore)
3:00-3:15 Room 17	Advice on your first 15 minutes (Jeff Wolcowitz)
3:15-3:30 Room 17	Some advice on writing problem sets and grading (Jeff Wolcowitz)
3:30-4:00 Snackbar Penthouse	Snacks

***Notes: the seminar will be conducted by veteran Ec. 10 section leaders. Many video clips from past Ec. 10 sections will be used throughout. Remember that you should come to the seminar with your first two lectures prepared as if you were going to give them. Finally, please bring your *Instructor's Manual* to the seminar (Thursday only).

SUGGESTED MICROTEACHING SCHEDULE
(For Group Leaders)

THURSDAY (Day 1)

MICROTEACHING SESSION I --- 9:45 - 10:30 AM (Taping from Supply and Demand Lecture)

1. Tape each person on first 4 minutes of "Supply and Demand lecture.
2. Tape each person on four-minute numerical/graphical example from "Supply and Demand" lecture.

Notes:
- a. Make sure everyone goes through opening four minutes before taping anyone on numerical/graphical example.
- b. You should probably switch order when doing numerical/graphical example, e.g. second person first, third person second, first person last.
- c. Make sure to STOP them after first four minutes of opening. If you have plenty of time, you may want to let them go 5-6 minutes each on numerical/graphical example.
- d. If still have "lots of time," you can have them each tell group how they "prepared" their lecture notes.... this will set them up for next segment of seminar on "How to Prepare a Lecture."

MICROTEACHING SESSION II --- 2:45-4:00 PM (Critique of Session I Tapes)

1. Brief review of "checklist" on "Opening Four Minutes."
2. Play first 4 minute clip and ask for comments/critique in light of "Providing Structure" checklist points. Then use back of checklist on "Delivery Style" and again ask for critiques.
3. Do the same for next two clips.
4. Play numerical/graphical example clip of first person. Use "checklist" on numerical/graphical example and ask for comments/critique. Also consider "delivery" and "blackboard" portions of checklist. (If they asked the group a question,

use "asking questions" portion of checklist as well....if they didn't ask question, you may want to point out where they could have.)

5. Do the same for the next two clips in group
6. If time remains, you can check their "lecture notes" in light of presentations of "How to Prepare A Lecture" and Caves' comments.

FRIDAY (Day 2)

MICROTEACHING SESSION III --- 9:15 - 10:30 (Repeat of "PROVIDING STRUCTURE")

1. Have each person tape opening 4 minutes of "Supply and Demand" again.
2. Play back and critique (rely more on section leaders for critique and comments....make sure to reinforce a bit more to build up confidence.)
3. Have each person tape opening 4 minutes of "Introduction" lecture.
4. Play back and comment if time permits. If not enough time to play back, perhaps make some suggestions to each without playing back.

MICROTEACHING SESSION IV --- 10:45 - 12:00 (Repeat of Numerical Example + INTERACTION)

1. Have each person tape numerical/graphical example from "Supply and Demand" lecture. While they are taping, make sure they ask "class" a question. In addition, ask them one or two questions from the list we prepared on "Supply and Demand" lecture.
2. Play back and discuss, using "checklist" on asking and answering questions, "boardwork," and "delivery style," as needed.
3. Remind them that our "suggested reponses" will be distributed in the session after lunch.

MICROTEACHING SESSION V --- 1:30 - 2:30 (Numerical Example from "Introduction" Lecture)

1. Have each person tape numerical/graphical example from "Introduction" lecture. Again, make sure they "ask" group a question and respond. Also, make sure you ask each person one or two questions from list on "Introduction" lecture.
2. Pass out "handout" on Some Likely Questions and Suggested Responses.
3. Play back and discuss/critique using suggested answers. Use "checklist" on asking and answering questions as well as "boardwork" and "delivery style" as needed.
4. Try to build up each person's confidence as this is last session.

UNIVERSITY OF ILLINOIS PRE-SERVICE PROGRAM AND FOLLOW UP

Office of Instructional Resources
Campus Teaching Programs (3-3370)

Greg Sharp
Coordinator

Department of Economics Teaching Assistants Program Guide

NOTE: This guide is tentative and can be adjusted according to the interests and concerns of the group.

Session 1: Wednesday, 8-23-78 9:00 a.m. Room 220 Commerce West

Topics:

Come prepared to discuss what you would like emphasized in the sessions.

Overview of program.

Lesson planning and organization of course material.

Explanation of peer teaching assignment for Thursday, 8-24-78.

Viewing of Economics TAs' peer teaching videotape.

Session 2: Thursday, 8-24-78 8:30 a.m. Room 120 Commerce Annex

Peer teaching.

Sign up for videotape playback of peer teaching lesson.

Session 3: Friday, 8-25-78 Room 120 Commerce Annex

Playback of individual videotapes by appointment.

The following sessions will be scheduled to run during the remainder of the fall semester. Dates, times and locations will be announced by the Department of Economics.

Session 4: Planning for a discussion section.

Session 5: Using effective classroom questions.

Session 6: Lecture presentation skills. Tips on available audio-visual materials.

Session 7: Test construction.

Session 8: Test construction (continued) and grading.

Session 9: Evaluation of instruction.

Individual Activities

1. Two videotapings and playbacks of your teaching. These videotapings occur in your classroom during a regularly scheduled class meeting.

2. Classroom observations: Using an observation guide, observe the teaching of a fellow TA or another instructor. Write a brief analysis of the lesson. This is an optional activity and may be substituted for one videotape of your teaching.

3. Obtain feedback about your teaching from one (or all) of your classes. You can use a standard evaluation form or one of your own devising.

4. You will also be asked to evaluate the Teaching Assistants Program.

Miscellaneous

1. Videotaping: Teaching Assistant who have previously participated in this program report that the videotaping experiences were extremely beneficial. Many participants believed videotaping was the best aspect of the program. However, if you think you may be very upset by videotaping, please let me know and we will arrange for some other form of feedback.

2. If you attend seven sessions and participate in at least one videotaping session, a letter briefly describing the program and stating that you participated may be placed in your file.

INDIANA UNIVERSITY SEMINAR DESCRIPTION AND SYLLABUS

E502

Teaching Introductory Economics, Spring 1978

BH 148, MW 4:00 - 5:00

Dr. Saunders
Office: BH 913
MW 10:30 - 12 NOON
TU 9:00 - 12 NOON
KH 104 - By Appointment
Phone: 7-2761

AV DSP Assistants:
Frances Gatz
Deronda Tucker

Economics Assistant:
Bruce Fletcher

Course Description

Planning, presenting, and evaluating instruction. Course content emphasized. Specific topics include learning theory, instructional objectives, course planning, textbook selection, lecturing and discussion techniques, visual aids, test construction, grading, student evaluation of instruction, and practical classroom teaching problems. Video tape and other analyses of participants' projects are employed.

Course Goals

The main goal of this course is to improve the teaching effectiveness of the participants who later become Associate Instructors in E103 and/or E104. Successful participation in this course is a necessary, but not a sufficient, condition for receiving an A.I. appointment to teach E103 and/or E104 in subsequent terms. Students who successfully complete the course but who are not later appointed as A.I.'s will at least have the experience on the record and the credit on their transcripts. A large number of I.U. graduate students in economics find academic jobs in predominately teaching oriented institutions, and several of them have indicated that their experience as an A.I. in our introductory courses was a real advantage in helping them secure their first job. We hope to make some of this advantage available to more of our graduate students, even if they all cannot be appointed to the limited number of A.I. positions that are available. If they choose to do so, participants completing the course can make their syllabuses, exam questions, and video tapes part of their dossier in seeking teaching jobs.

Specific Objectives

After completing the assigned readings and exercises, after attending the appropriate class sessions, and after meeting with a graduate assistant from the AV Center's Development and Special Projects Division, each participant who successfully completes this course will have completed all of the tasks listed below in such a way that two qualified reviewers judge that each of the products can be used in an actual E103 or E104 class with actual E103 or E104 students.

All tasks must initially be completed by the dates indicated. If feedback from the class in which they are employed or from other evaluative sources indicates that revisions and/or modifications are necessary, these modifications must be made before any task is considered finally completed. Some tasks require the cooperation of an E103 and an E104 instructor to whom you will be assigned as an "intern". These arrangements must be agreed to by Monday, January 23.

1. Prepare a specific cognitive objective and a specific affective objective for a lecture you will give to an E103 and an E104 class. (See Exercise 3 of the "Instructional Objectives" chapter of the Manual; Assignment must be initially completed by Wednesday, February 1.)

2. Prepare at least two multiple choice questions designed to measure the attainment of the cognitive objective of the lecture. (Assignment must be initially completed by Wednesday, February 8.)

3. Prepare an essay question and written answer key designed to measure the attainment of the cognitive objective of the lecture. (Assignment must be initially completed by Wednesday, February 22.)

4. Prepare and deliver a lecture to an E103 or E104 class. The lecture, which should attempt to accomplish the objectives of task #1, must be arranged and scheduled with the instructor with whom you will be "interning". (The exact date for your lecture should be determined as soon as possible, so that arrangements can be made to have an AV DSP assistant observe the presentation and so that arrangements can be made to have the lecture videotaped for subsequent analysis.)

5. Construct an overhead projector transparency to be used in your lecture. (The transparency must be completed before the lecture is given. Make sure that you have arranged for a projector and screen to be in the room on the day you lecture.)

6. Meet with AV DSP assistant to analyze the video tape of your lecture. After this meeting, a written statement of the two strongest and two weakest points in the lecture presentation should be submitted along with a statement of what, if anything, you would do differently if the lecture was to be repeated. (This report must be submitted by Monday, April 24 at the latest. Earlier submission are welcome.)

7. Devise and employ some method of evaluation to determine whether or not the affective objective of the lecture was attained. (A written analysis of whether or not the affective objective was attained should be included with the written statement for Task #6.)

8. If the questions completed for either Task #2 or #3 are used on an examination in the class to which you lectured, a written analysis of whether of not the cognitive objective of the lecture was attained should be included with the written statement for Task #6. IF NOT, you must prepare two original multiple choice question that an E103 or

an E104 instructor agrees to include on an examination for his or her students. Then, after the questions have been answered by students, use the Bureau of Educational Studies and Teaching (BEST) item analysis procedure to determine whether or not the questions you have written are "good" ones. (If this option is used, a brief explanation of why you think the questions are not "good" ones must be submitted by Monday, April 24.)

9. Prepare written answers to the questions on the "E502 Check List and Work Sheet for Book Reviews" for an introductory economics text that you select, and be prepared to make a five minute oral summary recommendation in class on Wednesday, March 29.

10. Prepare a detailed assignment sheet for a section of E103 Introduction to Microeconomics or E104 Introduction to Macroeconimics to be taught during the fall term of 1978-79. At a minimum, the assignment sheet must show: the section subtitle; the textbook and other supplementary material to be used; the number and dates of quizzes, exams, and homework assignments; the grading system to be employed; and some indication of the specific topics to be covered and the specific reading assignments and exercises to be completed by particular dates. In scheduling quizzes, exams, and/or homeowrk assignments, particular attention should be paid to institutional constraints such as religious holidays, vacations, "dead week," etc. Plans should also be made to devote one half hour of class time late in the semester to the administration of the course-wide instructor evaluation form. (Assignment must be completed by Monday, April 24.)

TENTATIVE ASSIGNMENT SHEET

Each E502 Student will be given copies of:

"Experimental Course Development in Introductory Economics at Indiana University", The Journal of Economic Education, Special Issue No. 4, Fall 1975.

Student Workbook for E103 Introduction to Microeconomics, 1977-78

Student Workbook for E104 Introduction to Macroeconomics, 1977-78

Draft Chapters from Resource Manual for Teacher Training Programs in Economics

These materials and the in-class lectures and activities outlined below are designed to help students successfully complete the tasks enumerated above. The in-class schedule has been kept to a minimum so that as much time as possible can be devoted to completing the enumerated tasks on an individual basis, but the schedule is flexible and it can be modified if there are good reasons for so doing.

DATE	TOPIC AND ASSIGNMENT
M 1-9	Introduction and Orientation Reading: E502 Syllabus Activity: Become thoroughly familiar with exactly *what* is expected of you *when* in this course. Ask questions about anything that is not clear to you.
W 1-11	E103 and E104 at Indiana University I Reading: *JEE* Special Issue No. 4, pp. 1-26 and as many of the Footnotes, Table and Appendices as you feel inclined to explore. Activity: Be prepared to ask any questions you might have about the analytical core, common finals, course and instructor evaluation forms, or any other aspect of E103 or E104.
M 1-16	E103 and E104 at Indiana University II Reading: E103 *Student Workbook*, pp. V-7, 105-108, and E104 *Student Workbook*, pp. V-5, p. 83, and pp. 89-92. Activity: Be prepared to hand in written answers with your name on the sheets, to: E103 homework problems #11, pp. 105-108, and #13, pp. 113-114; and E104 homework problem #7, pp. 83 and 89-92. Also be prepared to discuss how you would go about presenting the material covered by these homework problems to introductory students that you might be teaching.
W 1-18	Preparing Instructional Objectives Reading: Chapter 4 from *Manual* Activity: Be prepared to hand in written answers, with your name on the sheets, to questions #8 and #9 of Exercise 1 on pp. 33-34 of the chapter. Begin thinking seriously about Exercise 3, which must be handed in on February 1, and raise any questions you might have about Exercise 3. If you have not already done so, you should also begin arranging a date for your E103 or E104 lecture.
M 1-23	Lecturing Reading: Chapter 5 from *Manual* Activity: We will view and discuss some selected video tapes of lectures to introductory economics students. The date, time and room location of your own E103 or E104 lecture should be completed by now.

W 1-25 A Visit to the Micro Teaching Labs

Reading: None

Activity: The class will meet in the micro teaching labs located in Education 108 to see where and how you might practice your E103 or E104 lecture.

The preparation and use of overhead projector transparencies will also be discussed at this meeting.

M 1-30 and
W 2-1 Preparing and Analyzing Multiple Choice Test Items

Reading: Chapters 8 and 9 from Manual and the "special exercise" with the December 15, 1977, E103 Final Exam.

Activity: We will have Dr. Arthur L. Welsh as a special guest lecturer on both of these dates.

You should be prepared to hand in your written answers to the "special exercise" at the beginning of class on M 1-30.

Your written objectives for Task #1 enumerated above are due on W 2-1.

M 2-6 Preparing and Grading Essay Test Items

Reading: Chapter 7 from Manual. Bring your copies of the E103 and E104 Student Workbooks to class with you.

Activity: Without consulting with any other E502 students prepare an answer to question #3 of Exercise 2 on pp. 15-18 of the chapter, i.e. use a scale of 40-0 to assign a numerical score to each of the three essay answers. We will then discuss these independent answers in class.

W 2-8 Distribution of "E502 Check List and Work Sheet for Book Reviews" and Assigning Textbooks for Review on W 3-29

Reading: None

Activity: The title of this session says it all. Your written multiple choice questions for Task #2 enumerated above are due on W 2-8.

M 2-13 No Formal Class Meeting (NFCM)*
W 2-15 NFCM*
M 2-20 MFCM*
W 2-22 NFCM* -- Written essay question and answer key for Task #3 due in BH 913
M 2-27 NFCM*
W 3-1 NFCM*
M 3-6 NFCM*
W 3-8 NFCM*
M 3-13 NFCM*
W 3-15 NFCM*

------------------------- SPRING RECESS -------------------------

M 3-27 NCFM*

W 3-29 Brief Oral Presentation of Book Reviews
Reading: None
Activity: Again, the title says it all. Written answers to Task #9 should be handed in as well as the brief oral presentations. Some "model" assignment sheets will be distributed for discussion at the next meeting.

M 4-3 Discussion of Task #10 Assignment Sheet Assignment
Reading: "Model" assignment sheets distributed on 3-29.
Activity: Be prepared to ask any questions you might have concerning Task #10 due on M 4-24.

W 4-5 NFCM*
W 4-10 NFCM*

W 4-12 &
M 4-17 &
W 4-19 Dealing With Practical Teaching Problems: The Cheater, The Weeper, the Propositioner, etc., etc.
Reading: D. Menendez, "Critical Moments in College Teaching"
Activity: Video tapes and visits by former E502 students who are now teaching E103 or E 104 will be used as resources to discuss some of the "practical problems" of the teaching experience.

M 4-24 The Grand Finale (Almost)
Reading: None
Activity: If they have not been turned in previously, reports for Task #4-#8 and Task #10 are due.

An evaluation of this term's E502 experience will be conducted in class, so attendance at this meeting is mandatory.

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* **Note:** Since most E103 and E104 classes now run 60-70 students each, no formal session on leading classroom discussion and/or question asking have been scheduled. Resources for these and other topics, along with a fairly extensive optional reading list are available, however, and this tentative outline can be modified if it seems desirable and/or necessary.

Optional Reading

Participants are encouraged to begin building a personal library of books on teaching. In addition to handouts cited above, you will be given a copy of Getting Started: A Guide for Beginning College Instructors by Hawkins, Davies, and Majer. You might also seriously consider buying Wilbert J. McKeachie's Teaching Tips, 6th ed. (D.C. Heath, 1969). You are also encouraged to read widely on topics of particular interest to you. The attached bibliography is provided to aid your browsing and gives an indication of the amount of quality of the material available.

BASIC REFERENCE WORKS

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B. S. Bloom, et. al. (eds) Taxonomy of Educational Objectives: Cognitive Domain, 1956

R. L. Ebel, (ed) Encyclopedia of Educational Research, 4th ed., 1969.

L. C. Deighton, (ed) Encyclopedia of Education, 1971.

D. R. Krathwohl, et. al. (eds) Taxonomy of Educational Objectives: Affective Domain, 1964.

R. L. Thonrdike, (ed) Educational Measurement, 1971.

R. M. W. Travers, (ed) Second Handbook of Research on Teaching, 1973.

PERIODICALS OF GENERAL INTEREST

American Economic Review, Papers and Proceedings, issued every May with three papers on economic education presented at the previous annual meeting of the AEA.

Change Magazine, issued about 6-8 times per year.

Chronicle of Higher Education, issued about 40 times per year.

Daedalus, Fall 1974 and Winter 1975, "American Higher Education: Toward an Uncertain Future," Volumes 1 and 2.

Journal of Economic Education, issued two times per year.

RESERVE BOOKS AND ARTICLES
(Subject ot Periodic Additions and Changes)

D. Adkins-Wood, Test Construction: Development and Interpretation of Achievement Test, Merrill, 1961.

E. K. Allison, "Self Paced Instruction: A Review," Journal of Economic Education, 1975, 7, 5-12.

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M. L. Joseph, "Game and Simulation Experiments," Journal of Economic Education, 1970, 1, 91-96.

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E502

Special Exercise: December, 1977, E103 Final Exams

Attached is a copy of the E103 final exam given on December 15, 1977, and picture copies of selected pages from the Bureau of Educational Studies and Testing (BEST) analyses of this exam.*

1. Note the questions for indications of the type of questions you are expected to prepare for your E502 Task #2 due February 8.

2. Review p. 6 of the E103 Student Workbook for the content categories in the "analytical core" and review p. V for a description of the cognitive or "type of thinking" categories indicated on page 2 of the attached worksheets.

3. Complete all three pages of the attached worksheets in sequential order, and be prepared to hand them in at the beginning of class on M 1-3.

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* Copy of exam and BEST analysis not included in this Manual.

E502 "Special Exercise" Worksheet p. 1

NAME: ____
(Last) (First)

After reviewing the December 15, 1977, E103 final, and before looking at the BEST item analysis data, answer these questions:

I felt that the best question on this exam was question # ____ because:

I felt that the worst question on this exam was question # ____ because:

On balance, I felt that the exam would be (above average/about average/below average) in difficulty, with a mean raw score of about ____ questions correct out of 25 and with a standard deviation of about ____ questions.

E502 "Special Exercise" Worksheet p. 2

NAME ______________________________
(LAST) (FIRST)

Use the attached exam and BEST item analysis data to complete all of the information in this table.

Question No.	Content Category or Categories	Cognitive Category (RU,SA, or CA)	Percent* of Respondents Choosing			Correlation of Correct Response with Total Test Score	Percent of Top 1/3 of Total Test Scores Choosing Correct Alternative	Percent of Bot. 1/3 of Total Test Scores Choosing Correct Alternative	Percent Difference Between Top 1/3 & Bot.1/3
			Correct Alternative	Strongest Distractor	Weakest Distractor				
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

* Round Percentages to nearest whole number.

E502 "Special Exercise" Worksheet p. 3

NAME: ____
(Last) (First)

After reviewing the December 15, 1977, E103 final, and after looking at the BEST item analysis data, answer these questions.

The number of students taking this exam was _________. They had a mean raw score of ________ questions correct out of 25, with a standard deviation of ________ questions.

The test proved to be (easier/harder) than I originally estimated that it would be.
choose one

I now feel that the best question on the exam was question #________ because:

I now feel that the worst question on the exam was question #________ because:

E502

CHECK LIST AND WORK SHEET FOR BOOK REVIEWS

(After reading Laurence E. Leamer, "A Guide to College Introductory Economics Textbooks", Journal of Economic Education, Vol. 6, No. 1, Fall 1976, pp. 47-56, carefully prepare written answers to the following questions. Leave your answers with Professor Saunders after making your oral report on 3-29 if not before.)

TEXT: ____

(Author) (Short Title) (Publisher and Date of latest edition)

GENERAL

1. In terms of Leamer's classification scheme (pp. 55), the basic "approach" of the book is ______________________________

2. Ledgibility (size of print, single or double column format, use of white space, size of headings and use of color for emphasis) is: (check one and elaborate)

   good __________, bad __________, indifferent __________

3. Is the writing style formal and pedantic, light and breezy?

4. Is the reading level high or low, hard or easy?

5. Does the length of chapters or major divisions within chapters lend itself to easy subdivision for daily reading assignments?

6. To what extent and with what success are specific numerical examples used to illustrate major points? (If used, are tables easy to read and understand? Do captions effectively highlight the main points of each table? Are the tables integrated with the flow of the text?)

7. To what extent and with what success are real world examples, data, and situations used to illustrate major points? (Are presentation abstract and hypothetical or concrete and real?)

9. Do chapters have to be used in a rigid sequential order, or can they be assigned out of sequence?

TREATMENT OF CERTAIN CORE IDEAS

(Note: Some of the following questions require an evaluation of homework problems in the Workbooks as well as an evaluation of the text. Suggestions for changing or improving the Workbooks are always welcome.)

Macroeconomics

1. Is the explanation of GNP accounting and the use of terminology adequate to enable the student to complete homework problems #1 and #2 in the E104 Workbook?

2. Is there any treatment of the problem of simultaneous inflation and unemployment? If so, how is it handled? Is there an adequate explanation of how inflation and umemployment are measured? Is there anything in the book that would help students work homework problem #3 in the E104 Workbook?

3. In explaining the income-expenditure approach to aggregate economic equilibrium is the emphasis on Y=C+I or I=S, or both? Is the explanation adequate to enable the student to complete homework problem #6 in the E104 Workbook? (Note data for all models in the Workbook on p. 83.)

4. In explaining the multiplier is the treatment adequate to enable the student to complete part D of homework problem #7 in the E104 Workbook? Does the text explain how the value of the multiplier might change even if the MPC out of disposable income remains the same?

5. Are the differences between the income-expenditure (Keynesian) and monetarist (Friedmanite) approach to aggregate economic equilibrium adequately explained?

6. Is there enough on the multiple expansion of demand deposits to enable the students to complete homework problem #9 in the E104 Workbook?

7. Is there enough on the use of "T" accounts in analyzing Federal Reserve operations to enable students to complete questions #3-9 of homework #11 in the E104 Workbook?

Microeconomics

1. How is the production possibilities curve handled? Is there enough to enable the students to complete homework problem #2 in the E103 Workbook?

2. How is price elasticity of demand handled? Is there enough to enable the students to complete homework problem #8 in the E102 Workbook?

3. Is supply and demand analysis applied to excise tax problems? Is there enough to enable students to complete homework problem #11 in the E103 Workbook?

4. How are agricultural price supports handled? Is there enough to enable students to complete homework problem #14 in the E103 Workbook?

5. How are factor markets treated? Is there enough to enable students to complete homework problem #14 in the E103 Workbook?

6. How are externalities treated? Is there enough to enable students to complete homework problem #19 in the E103 Workbook?

OVERALL EVALUATION

1. Would you use this book to teach E103? Why or why not?

2. Would you use this book to teach E104? Why or why not?

SUPERVISION & TRAINING OF GRADUATE TEACHING ASSISTANTS IN ECONOMICS

UNIVERSITY OF MISSOURI

Staffing

Most economics graduate teaching assistants teach lab sessions which accompany courses in which a faculty member teaches a large lecture session. For example, fifteen T.A.'s teach two lab sessions a week, while a faculty member lectures three times a week in the five-hour Economics 51, the largest introductory course in the department. Each T.A. is responsible for two or three sections. Other T.A.'s (nine) in the department teach lab sessions or, in the case of one course, assist in grading and answering questions during office hours. It has been the policy of the department to not give T.A.'s full responsibility for a course. However, two senior graduate students with teaching experience are currently teaching their own course.

Orientation & Supervision

Teaching assistants in Economics 51 are supervised by the faculty member teaching 51. T.A.'s are given considerable guidance on what to do during each lab meeting, but are allowed to choose among alternat The T.A.'s serve on committees that are responsible for developing materials to be discussed and for writing the examinations, among other duties.

The teaching assistants meet for one to two hours every other week to discuss what will be taught during the next lab sessions. Those meetings are led by the faculty member and senior teaching assistants.

Graduate Assistant Teacher Training Program

Present Program. Teaching assistants meet one to two hours on alternate weeks to discuss teaching. These sessions are led by the faculty member teaching Economics 51 and the Director of the Center for Economic Education.

Three hours of graduate credit (Economics 402) are offered for graduate students who are first year T.A.'s. The course meets all year long. Second and third year T.A.'s attend and receive one hour of credit. Most T.A.'s for courses other than the major introductory course take the seminar at least once and receive credit.

The following topics are covered.

- I. Introduction to Developing Teaching Skills.
- II. The Use of Instructional Objectives.
    - A. Planning the course
    - B. Planning classes
    - C. Testing and evaluation
- III. Testing
    - A. Multiple-Choice Tests
        - 1. Writing questions
        - 2. Item-analysis
    - B. Essay exams
- IV. The Use of Video-Taping
- V. Lecturing Skills
- VI. The Case Study Method
- VII. Leading Discussions

T.A.'s are video-taped once each semester. Those tapes are evaluated in consultation with a senior T.A. or a faculty member. In addition, some T.A.'s prepare short lectures or discussions to present to other T.A.'s for evaluation and feedback as part of the seminar.

1978-79 Program. We have felt the need to prepare the T.A.'s earlier in the first semester. Beginning in the fall of 1973, the schedule for the training seminar will be revised.

The teacher training seminar will meet for three to four hours, three nights during the first week of the semester. Topics I, II, V, VI, and VII will be covered during that period. The seminar will then meet for one hour every other week throughout the first semester. During the second semester, the seminar will meet four or five times to discuss specific problems.

UNIVERSITY OF MINNESOTA SEMINAR SYLLABUS OUTLINE

Econ 8-911 Methods: Econ. Educ.
(Fall, 1977)

Instructors: George T. McCandless, Jr. and William E. Becker, Jr.

Readings: Gronlund, Stating Behavioral Objectives for Classroom Instruction
Becker, et. al., A Training System for Graduate Student Instructors in Economics

I. Meeting One
  A. Introduction
    1. Purpose of Seminar
    2. History of development of Seminar.
  B. Department Services and Requirements from Instructors
  C. Taping Procedures
  D. Statistical Background on Intro Course Students
  E. "Emergency" Classroom Techniques
    1. Lecture hints
    2. Use of review
    3. Encouraging student participation
    4. Use of advanced organizer.

II. Meeting Two
  A. Discussion Periods for Specific Teaching Problems
  B. A Systems Model for Education
    1. Relation to teaching
    2. Relation to seminar process
  C. Discovering Student Needs
  D. Setting Course Goals
  E. General Teaching Objectives
    1. Behavior orientation
    2. Relation to needs vs. goals.

III. Meeting Three
  A. Discussion Period for Specific Teaching Problems
  B. Review General Teaching Objectives
  C. Instructional Objectives

        1. Competency based instruction
        2. Group norm instruction.
    D. Case Studies and Examples.

IV. Meetings Four and Five
    A. Discussion Period for Specific Teaching Problems
    B. Testing
        1. Essay vs. multiple choice
        2. Rules for writing test questions
        3. Internal properties of tests
        4. Post-test analysis
        5. Grading.

V. Meeting Six
    A. Discussion Period for Specific Teaching Problems
    B. Lecturing - Method
        1. Strengths and weaknesses
        2. Alternatives.
    C. Lecture Organization
    D. Presentation
        1. Behavior of lecturer
        2. Standard procedure for main points.

VI. Meeting Seven
    A. Discussion Period for Specific Teaching Problems.
    B. Real vs. Artificial Examples
    C. Use of Newspapers and Current Events
    D. Case Study Methods
    E. Games and Simulations.

VII. Meeting Eight
    A. Discussion Period for Specific Teaching Problems
    B. Use of Discussion in Class
        1. Motivation
        2. Feedback
    C. Leader Roles
    D. Using Probing to Get Beyond Superficial Responses
VIII. Meeting Nine
    A. Obtain participant's feedback on seminar portion of the Teacher
    B. Training Program and other unresolved issues.

PURDUE UNIVERSITY PRE-SERVICE PROGRAM

Schedule of Activities

Monday, August 22, 1977

Time	Activity	Instructor
8:30- 8:45	Coffee and doughnuts	
8:45- 9:00	Goals and overview	Directors
9:00- 9:45	Time management	Frank Sterner
9:45-10:45	Writing objectives	Russell Ames
10:45-11:00	Coffee	
11:00-11:30	Workshop time: writing objectives	Russell Ames
11:30-12:00	Critique of participant written objectives	Russell Ames
12:00- 1:00	Lunch	
1:00- 2:45	Interpersonal relations in the classroom setting	Don King
2:45- 3:00	Coffee	
3:00- 4:00	Principles of testing and measurement	Allan Starry
4:00- 4:30	Workshop time: writing test items	Allan Starry
4:30- 5:00	Critique of participant written test items	Allan Starry
5:00- 7:00	Dinner - new graduate students, teaching assistants, staff, and new faculty	

Tuesday, August 23, 1977

8:30- 8:45	Coffee and doughnuts	
8:45- 9:00	Review, goals, and overview	Directors
9:00-10:30 } Simultaneous	Leading a discussion	Henry Ewbank
9:00-10:30 } Sections	Conducting a case study class	Charles King
10:30-10:45	Coffee	
10:45-12:00	Micro-teaching principles	Sam Shermis
12:00- 1:00	Lunch	
1:00- 4:00	Micro-teaching experience	Sam Shermis and Directors
4:00- 4:30	Critique of retreat	Directors

Retreat for Krannert School Teaching Assistants

General Goal

The general goal of this retreat is to improve the level of undergraduate instruction in the School of Management by familiarizing inexperienced graduate student instructors with the educational resources available to them and introducing them to basic educational principles.

Specific Goals and Expected Outcomes

The objectives peculiar to each area of instruction dealt with in the two-day retreat are shown below.

Time Management Session

1. Objectives

   Upon successful completion of this session, participants will be able to utilize motivation and time management techniques to meet personal and professional goals.
2. Activity

   Film and worksheets on goal setting and time management.
3. Supplementary Readings

   How to Get Control of Your Time and Your Life, Alan Lakein.

Behavioral Objectives

1. Objectives

   Upon successful completion of this session, participants will be able to select behavioral objectives stated in performance terms, identify portions of behavioral objectives that define minimum acceptable performance, and select test items appropriate to the evaluation of objectives.
2. Activity

   Lecture, small group work, and self tests.
3. Supplementary Readings

   Preparing Instructional Objectives, Robert Mager.

Interpersonal Relations

1. Objectives

   Upon successful completion of this session, participants will be able to send students away from the learning experience with a tendency to approach, rather than avoid, the subject of study.

2. Activity

   Use of opener, brainstorming, simulations, and games.

3. Supplementary Readings

   Developing Attitude Toward Learning, Robert Mager.

Leading a Discussion

1. Objectives

   Upon successful completion of this session, participants will be able to describe the roles of the leader and the members in effective group discussions and demonstrate intervention techniques needed to maintain productive group discussions.

2. Activity

   Demonstration, role playing, and group decision-making.

3. Supplementary Readings

   Teaching tips: A Guidebook for the Beginning College Teacher, Wilbert McKeachie.

Conducting Case Study Analysis

1. Objectives

   Upon successful completion of this session, participants will be able to distinguish between the objectives and pedagogical strategies used in case study teaching as opposed to traditional teaching.

2. Activity

   Classroom demonstration of case study analysis and critique.

3. Supplementary Readings

   Case packet.

Microteaching

1. Objectives

    Upon successful completion of this session, participants will be able to teach, observe themselves teach via video tape, and critique their teaching of a five minute lesson on a single concept with experienced staff members.

2. Activity

    Lecture, video taping, and playback for individual and staff critique

Evaluation Plans and Procedures

Several kinds of evaluation instruments will be used. The ultimate objective is to improve the level of instruction in the undergraduate classroom; consequently, primary emphasis will be focused on that goal. The components of the evaluation program are:

1. A half-day critique at the end of the semester in which retreat participants will:
    a. Orally summarize the personal teaching experience and relate the role the two-day retreat played in their teaching.
    b. Break into small groups and prepare committee reports identifying areas of success and failure in the previous semester's teaching experience.
    c. Prepare a set of recommendations for improving undergraduate teaching in the small groups.
    d. Share these reports.
2. Each new teaching assistant will be videotaped during the fall semester, and his/her performance will be systematically analyzed.
3. All new teaching assistants will use the course and instructor evaluation program to obtain the students' assessment of their classroom performances.

Staff Roster

Coordinators:

Dennis J. Weidenaar	Department of Economics	Purdue University
Marianne Talafuse	Department of Economics	Purdue University

Staff:

Russell Ames	Department of Education	Purdue University
Henry Ewbank	Department of Education	Purdue University
Charles King	Department of Management	Purdue University
Donald King	Department of Administrative Sciences	Purdue University
Sam Shermis	Department of Education	Purdue University
Allan Starry	Measurement and Research Center	Purdue University
Frank Sterner	Department of Economics	Purdue University
Richard Walbaum	Department of Economics	Purdue University

Reading Materials

Lakein, Alan, How to Get Control of Your Time and Your Life, New American Library, New York, New York, 1974, 160 pp.

Mager, Robert F., Developing Attitude Toward Learning, Fearon Publishers, Palo Alto, California, 1962, 60 pp.

________________, Preparing Instructional Objectives, Fearon Publishers, Palo Alto, California, 1962, 60 pp.

McKeachie, Wilbert J., Teaching Tips: A Guidebook for the Beginning College Teacher, D.C. Heath and Company, Lexington, Massachusetts, 1969, 280 pp.

Test Development Handbook, Measurement and Research Center, Purdue University, Lafayette, Indiana.

Larson, Allen E. and Nappi, Andrew T. (Editors), Goals and Objectives of the Introductory College Level Course in Economics, Federal Reserve Bank of Minneapolis, Minneapolis, Minnesota, 1976, 42 pp.

UNIVERSITY OF WISCONSIN PRE-SERVICE PROGRAM

Introductory Training Session for Economics 101, Spring 1976

Topic	Speaker	Time	Minutes	Trigger Tape
I. Welcoming Remarks	Hansen, Gitter Waldo	9:30	5	
II. Background on TA's				
A. In the UW	Jim Roseberry TAA Repr.	9:35	15	
B. In the Econ. Dept.	Hansen, Weiss	9:50	5	
III. Economics 101				
A. Course Objectives	Hansen, Weiss	9:55	30	
B. Accomplishment of the Objectives	" "			
C. The Role of the TA in (B) above	" "			
IV. General Discussion	Hansen, Weiss	10:25	5	
- BREAK -		10:30	15	
V. Section Objective				
A. TA's	Gitter	10:45	15	1- "Goals"
B. Students	Gitter	11:00	10	2- "Grades"
VI. Meeting Objectives/ Measuring Objectives				
A. Written Assignments	Waldo	11:10	20	3- "The Contract"
B. TIPS system	Hansen	11:30	15	
C. Discussion		11:45	5	
- LUNCH -		11:50	70	
VII. Section Administration				
A. The First Section	Gitter	1:00	20	4- "The Model Teacher"
B. Hints on Administration from past TA's (Gradebooks, etc.)	Gitter, Waldo	1:20	15	
C. UW supported aids	Waldo	1:35	10	
VIII. Discussion Sections				
A. What is the Objective (Recap)	Hansen	1:45	5	
B. What is the best mix of techniques, i.e., lecture discussion, quiz	"	1:50	15	

Topic	Speaker	Time	Minutes	Trigger Tape
IX. Leading a Discussion				
A. Starting a disc.	Gitter, Waldo	2:05	10	5- "The Assignment"
B. Ensuring equitable distribution of discussion	" "	2:15	10	6- "There's One in Every Class and Sometimes More"
C. The TA's role in discussion	" "	2:25	15	7- "Never at a Loss"
- BREAK -		2:40	10	
X. Mock discussion section and critique				
A. 1st mock discussion	Volunteer 1	2:50	10	
B. Critique	All	3:00	15	
C. 2nd mock discussion	Volunteer 2	3:15	10	
D. Critique	All	3:25	15	
E. 3rd mock discussion	Volunteer 3	3:40	10	
F. Critique	All	3:50	--	

Trigger Tapes

Number	Title	Length	Synopsis
1	"Goals"	1;50	On the first day of class the TA lists the goals for the course. He tells the students specific facts they will know by the end of the course, but, not why these facts might be important, e.g., where the grey goose lays her eggs.
2	"Grades"	1:15	The TA informs class that they are all here to work together, that they need one another. He becomes flustered when students demand exact criteria for A in course.
3	"The Contract"	1:10	TA and student disagree over the grade given the student's paper. The main cause of contention is the TA's failure to define criteria for grading.
4	"The Model Teacher"	2:45	This tape details the misadventures of a TA conducting his first section. He's disorganized, has trouble pronouncing his student's names, and finishes up the section by telling students the psychology course will focus on his pet research topic - cockroaches.

Number	Title	Length	Synopsis
5	"The Assignment"	1:35	When the TA tries to initiate a discussion on the reading assignment, he discovers no one has read it.
6	"There's One in Every Class and Sometimes More"	2:15	TA summarizes an article, only to have it re-summarized and elaborated by a long-winded student effectively stifling any further discussion.
7	"Never at a Loss"	1:30	TA is never at a loss for words, even when he has nothing to say. When a student asks a question to which the TA doesn't know the answer, the TA responds anyway in a long-winded, round-about, jargon-filled speech.

UNIVERSITY OF WISCONSIN-MADISON

SEMINAR DESCRIPTION AND SYLLABUS

Economics 801	Professor W. Lee Hansen
Teaching of College Economics	Semester II, 1977-78

This two-credit course meets on Monday evenings from 7-9:30 p.m. in 7324 Social Science. Enrollment is limited to approximately 15 students, with preference given to teaching assistants, followed by fourth-year students, third-year students, etc.

The purpose of the seminar is to expose economics graduate students to that body of knowledge concerned with effective college instruction in economics. In the conduct of the seminar, three objectives will be emphasized. The first calls for each student to assemble the elements of an economics course he would like to teach. The second offers an opportunity for students to develop and practice certain instructional skills. The third provides a forum for discussing the philosophy and problems of teaching economics. It is hoped that this seminar will ease the transition to teaching for students taking academic positions. Of course, more immediate benefits should result for students who are or plan to be teaching assistants.

Course Outline

We will hold to this outline as nearly as possible. Please note additional assignments and any changes in assignments. Various handouts will be provided which constitute most of the assigned readings. Other readings available in the 8th floor library are underlined. To facilitate the future usefulness of the handouts, I suggest you collect them in a loose-leaf binder. All reading, written assignments, and other activities are for the weeks indicated; type your written assignments on dittoes and prepare enough copies for everyone, including 3 copies for me. (Note: The arabic numerals following some of the reading assignment handouts are chapter numbers for the TTP manual in preparation. Asterisks indicate assignments from items on reserve in the 8th floor reading room.)

Week and Date	Seminar Topic	Reading Assignments	Written Assignments - Other Activities
1st 24 Jan	Organizational Meeting	Syllabus material TTP brochure Readings in Teaching Getting Started	
2nd 31 Jan	Planning a Course	The Teacher Manager Organizing an Economics Course (10) Economics Course Content (2)	
3rd 7 Feb	Course Goals and Instructional Objectives	Learning Theory (3) Instructional Objectives (4) Learning and Teaching Fels III Bach IV	Write course objectives for course you expect to teach, also, a justification for objectives. Discuss in class. Videotape a 5-minute presentation of an economic concept.
4th 14 Feb	Motivating Students	Ericksen* McKeachie*	Begin work on small research project or design of a project after consultation with Hansen
	A Curriculum Approach	Hansen, A. Framework...	
	Research in Economic Education	Lewis Report & Supplement Lumsden*, Lumsden*, and Welsh*	
5th 21 Feb	Course Orientation	Hansen AEA paper J of EE Special Reports* Change Magazine* Kelley Proposal Maxwell Proposal	Write an analysis of a text you would like to use and explain how you would use it. Discuss in class.
	Selection of Texts	Leamer paper Hansen materials on texts* (Leamer reports)	

6th 28 Feb	Lecturing (videotapes)	Lectures as an Instructional Method (5) Bligh* McKeachie*	Attend a lecture and write a brief critique of it and lecturer.
7th 7 Mar	Discussion Leading (videotapes)	Improving Classroom Discussions (6) Leading Group Discussions Schwab paper	Prepare discussion questions on articles distributed to you.
8th 14 Mar	Discussion Leading (continued) Interacting with Students (videotapes)	Interpersonal Communication Skills Rogers*	Attend a discussion section and write a brief critique of it and leader.
9th 28 Mar	Case Approach (videotapes)	Fels III (review) Fels, J of EE* Fels and Uhler Text* Fels and Uhler Staff Notes*	Find newspaper articles for two cases.
10th 4 Apr	Evaluating courses & instructors; improving instruction (videotapes)	JEE, Fall 1973* Course Evaluation Material* Hansen Eble* Development and Evaluation of Teaching Videotapes (11) Course and Instructor Evaluation (12)	
11th 11 Apr	Independent study: student projects, problem sets, student writing, etc.		Write description of student projects to fit into your course design.
12th 18 Apr	Exam Questions	Essay Question & Tests (7) Multiple Choice Objective Tests (8) The Item Analysis of Multiple Choice Tests (9)	

13th 25 Apr	Exam Questions (continued)		Prepare 2 essay questions and answers, and 6 multiple-choice questions.
14th 2 May	Use of Media, Audio Tapes, etc.	Learning Aids (13) Hansen Draft (overhead) Hansen Audio Tape Project Report	Prepare transparencies for concept presentation. Repeat earlier videotape of a concept and compare the two tapes.
15th 9 May	The Undergraduate Major and the Liberal Arts	Hartman paper Highet* AER, Dec. 1950* AER, Sept. 1955* Heath*	Turn in research project or proposal.
16th 16 May	Concluding session	College Teaching: Problems and Solutions	

Texts

There are no required textbook purchases. Students, however, are encouraged to begin building a personal library of books of teaching. A selection of items is presented in the handout "Readings on Effective Teaching." Of special interest are the books of Eble (5), Ericksen, Highet and McKeachie--I strongly recommend that you acquire and read these books.

Assigned Readings

There will be reading assignments from a number of books on reserve in the 8th floor library. There will also be readings from a number of handouts, some representing chapters from a manual on teaching which is being prepared for economics teachers; other supplementary items will also be available. In addition, you are encouraged to read widely on topics of special interest.

Reserve Books

The following books are on reserve. Additional items will be placed on reserve from time to time. When these are announced, please add them to your list.

1.	Bligh, Donald A.	WHAT'S THE USE OF LECTURES?
2.	Bruner, Jerome	THE PROCESS OF EDUCATION
3.	Chase, John L.	GRADUATE STUDENT TEACHING IN AMER. UNIV.
4.	Dept. of Army FM 21-6	TECHNIQUES OF MILITARY INSTRUCTION
5.	Eble, Kenneth E.	THE CRAFT OF TEACHING
6.	Eble, Kenneth E.	PROFESSORS AS TEACHERS
7.	Eble, Kenneth E.	THE RECOGNITION AND EVALUATION OF TEACHING
8.	Erickson, Stanford C.	MOTIVATION FOR LEARNING
9.	Fels & Uhler	CASEBOOK OF ECONOMIC PROBLEMS AND POLICIES
10.	Fels & Uhler	STAFF NOTES TO ACCOMPANY CASEBOOK OF ECONOMIC, MACROECONOMIC, MICROECONOMIC PROBLEMS AND POLICIES
11.	Hansen, W. Lee	MATERIALS ON TEXTBOOKS
12.	Hansen, W. Lee	THE COURSE AND INSTRUCTOR EVALUATION SYSTEM, ECONOMICS DEPARTMENT, UNIV. OF WIS., MADISON
13.	Hansen, W. Lee *et al.*	A FRAMEWORK FOR TEACHING ECONOMICS: BASIC CONCEPTS
14.	Heath, Roy	THE REASONABLE ADVENTURER
15.	Highet, Gilbert	THE ART OF TEACHING
16.	Highet, Gilbert	THE IMMORTAL PROFESSION
17.	JOURNAL OF ECONOMICS EDUCATION, THE	Fall 1973, Vol. 5, No. 1
18.	Lee, Calvin B.T.	IMPROVING COLLEGE TEACHING
19.	Leamer, Laurence E.	THE ECONOMIST AS TEACHER
20.	Lumsden, Keith G.	NEW DEVELOPMENTS IN THE TEACHING OF ECONOMICS
21.	Lumsden, Keith G.	RECENT RESEARCH IN ECONOMICS EDUCATION
22.	Mager, Robert	PREPARING INSTRUCTIONAL OBJECTIVES
23.	McKeachie, Wilbert	TEACHING TIPS A GUIDEBOOK FOR THE BEGINNING COLLEGE TEACHER
24.	Morris, William B.	EFFECTIVE COLLEGE TEACHING
25.	Norton, Hugh S.	THE WORLD OF THE ECONOMIST
26.	Nowlis, Vincent	THE GRADUATE STUDENT AS TEACHER
27.	Rogers, Carl	FREEDOM TO LEARN
28.	Welsh, Arthur L.	RESEARCH PAPERS IN ECONOMIC EDUCATION
29.	Werdell, Philip	COURSE AND TEACHER EVALUATION

Keeping Abreast of the Field

There is a regular flow of information about teaching and other developments in higher education that you should try to follow. The best sources for such information are:

JOURNAL OF ECONOMIC EDUCATION, two issues per year

AMERICAN ECONOMIC REVIEW, PAPERS AND PROCEEDINGS, Session on Economic Education, annually

CHANGE MAGAZINE, issued about 6-8 times per year

CHRONICLE OF HIGHER EDUCATION, higher educations' newspaper,issued about 40 times per year

SCIENCE, issued weekly

Also, for some interesting recent perspectives on higher education, see

DAEDALUS, Fall 1974 and Winter 1975, "American Higher Education: Toward An Uncertain Future," Volumes 1 and 2.

BASIC REFERENCE WORKS

We will make no effort to survey the voluminous literature on teaching learning, testing, curriculum, and the like. If you want to explore this literature, I suggest you start with the following sources:

ENCYCLOPEDIA OF EDUCATIONAL RESEARCH, 1969 (4th) Edition. Robert L. Ebel, Editor

ENCYCLOPEDIA OF EDUCATION, 1971 Ed. L. C. Deighton, Editor

SECOND HANDBOOK OF RESEARCH ON TEACHING, 1973 Edition. Robert M. W. Travers, Editor

EDUCATIONAL MEASUREMENT, 1971 (2nd) Edition. Robert L. Thorndike, Editor

ENCYCLOPEDIA OF EDUCATIONAL EVALUATION, 1975. Scarvia B. Anderson, *et al.*, Editors

HANDBOOK ON FORMATIVE AND SUMMATIVE EVALUATION OF STUDENT LEARNING 1971 Benjamin S. Bloom, *et al.*

Department of Economics
University of Wisconsin-Madison
Madison, Wisconsin 53706

READINGS ON EFFECTIVE TEACHING

W. LEE HANSEN

(This is a revised and updated version of
a paper that originally appeared in The
Journal of Economic Education, Fall 1973.)

The preparation of graduate student instructors and new young faculty members for their initial teaching experience is still largely ignored in most graduate Ph.D. programs including those in economics. When finally thrust into the teaching role, neophytes must live by their wits as they seek to develop those elusive skills that will enable them to present effectively the knowledge and thinking processes they have worked so hard to acquire in graduate study. Unfortunately, the results are probably quite mixed. A number turn out to be first-rate teachers, a few fall into the mediocre category, and the vast majority rank somewhere between these extremes.

Unless we accept the view that good teachers are born rather than made we must develop ways by which people can improve their teaching skills. The time is now ripe for this given the widespread concern about the quality of undergraduate teaching. Well publicized student evaluations of professors are increasing these pressures while at the same time the greater weight given to teaching performance in the setting of salaries offers an incentive for people to seek improvement. Instructors may be ready to respond to these changes but all too frequently they simply don't know how.

W. Lee Hansen, Professor and former Chairman, Department of Economics, The University of Wisconsin at Madison

Fall, 1977

Several approaches offer hope. One is for colleges and universities to establish teaching improvement centers which provide professional help on instructional problems. A number of institutions are already moving in this direction. Another more direct approach is for departments to institute their own training programs such as those at the University of Minnesota and elsewhere. These programs though designed largely for graduate students, will almost certainly have some spillover effects on the teaching faculty. Both of these approaches are likely to have a substantial impact although they require a strong commitment of energy and resources to the improvement of teaching. It is unfortunate but true that with budgets as tight as they are and the antipathy displayed by academics to formal programs for teaching improvement progress is not likely to be rapid.

In the interim, then, individuals will have to rely almost exclusively on their own efforts at self-improvement. But where can they turn? Interestingly, there exists a vast literature on teaching that is largely unknown to most of us. From this literature much can be learned from the narrow "tricks of the trade" to the larger issues of what makes for effective teaching. I have gone through at least a portion of this literature in an effort to develop a short annotated list of inexpensive and accessible books designed to be helpful to both new and experienced teachers. I hope you will find some of these readings valuable in your on-the-job investment in teaching improvement.

Practical Information of Help to Teachers

You and Your Students. Massachusetts Institute of Technology. Single copies free. (Director of Admissions, MIT, Cambridge, Massachusetts.)

In this little pamphlet which has been revised and reprinted many times over the past 15 years, an MIT Faculty Committee suggests some simple rules to help the beginning teacher to increase his teaching effectiveness.

Eble, Kenneth E., *The Craft of Teaching: A Guide to Mastering the Professor's Art*. Jossey-Bass, 1976, $10.95.

This book grows out of Eble's long interest in improving teaching. It offers specific advice and realistic suggestions to improve the teaching of all college instructors. Eble emphasizes that teaching is a craft--that people are not born with teaching skills but can acquire them. An excellent book.

Hawkins, Susan, Ivor Davies, and Kenneth Major, *Getting Started: A Guide for Beginning College Instructors*. Indiana University, $1.00. (Associate Instructor Teaching Skills Program, University Division, IU, Bloomington, Indiana.)

Designed as a handbook for new graduate student instructors at Indiana University, this publication contains a wealth of valuable information for anyone just starting to teach.

Highet, Gilbert, *The Art of Teaching*. Vintage paperback, 1954, $.95.

A master teacher himself, Highet here describes in his own delightful way the trials and joys of teaching and offers a model of teaching effectiveness that we might all try to emulate.

McKeachie, Wilbert J., *Teaching Tips: A Guidebook for the Beginning College Teacher*. Heath paperback, 6th ed., 1969, $3.50.

McKeachie provides an abundance of good advice about teaching methods and all the issues that confront a new teacher. He also discusses methods of evaluating teaching and research on successful teaching centering largely on his own field of psychology.

Department of the Army Field Manual FM 21-6, *Techniques of Military Instruction*. Headquarters, Department of the Army, Washington, D.C., current price not known.

This manual provides a comprehensive treatment of all phases of instruction. While some of the suggestions are more appropriate to military situations, others are particularly valuable in a college context such as those which pertain to the development and use of detailed and effective lesson plans. All new instructors can profit from studying this well-prepared manual.

Selected Items on Effective Teaching

Bligh, Donald A., *What's the Use of Lectures?* Penguin Books, 1972, ea. $2.00.

Bligh in this stimulating book describes the opportunities for learning that can be provided via lectures, surveys the evidence of the past 50 years on the effectiveness of lectures, and provides specific suggestions on how lecturing can be an effective teaching tool. Highly recommended.

Bruner, Jerome, *The Process of Education*. Vintage paperback, 1963, $1.45.

This now-classic volume, though addressed to the improvement of science teaching at the precollege level, has many wise things to say about learning and teaching that are equally applicable to the college level. The book is a pleasure to read.

Eble, Kenneth E., *Professors as Teachers*. Jossey-Bass, 1972, $2.75.

The author who directed the two-year AAUP Project to Improve College Teaching here sums up his findings based on what goes on in college classrooms across the country. He also offers a number of proposals designed to enhance the professor's role as a teacher and to encourage and reward excellent teaching.

Ericksen, Stanford C., *Motivation for Learning*. University of Michigan Press, 1974, $9.50.

The long-time Director of Michigan's Center for Research on Learning and Teaching brings together significant applications from research and theory about learning, motivation, personality, and group dynamics. The book is less concerned with teaching techniques than with student motivation to acquire new knowledge and values.

Highet, Gilbert, *The Immortal Profession*. Weybright and Talley, 1976, $10.00.

This companion volume to *The Art of Teaching* collects Highet's essays and speeches on special aspects of teaching. Several of these papers are exceptionally valuable. But read *The Art of Teaching* first.

Lee, Calvin T., Ed., *Improving College Teaching*. American Council on Education, 1967, $6.00 (ACE, One DuPont Circle, Washington, D.C. 20036.)

These first-rate essays cover the entire range of problems associated with improving college teaching. The papers scrutinize recent research findings, survey current practices and advocate positions, all of which focus on a concern for teaching as a major objective in colleges and universities.

Morris, William H., Ed., *Effective College Teaching*. American Council on Education, 1970, $3.50 (ACE, One DuPont Circle, Washington, D.C. 20036.)

This is one of the better collections of essays on teaching problems associated with different disciplines. While all the essays are useful, Kenneth Boulding's paper on the social sciences is especially provocative. His nine "queries" are designed to force teachers to think more carefully about what they do.

Peterson, H., *Great Teachers*. Vintage paperback, 1946, $1.95.

Here are first-hand recollections of over twenty great teachers, written by people who studied under them and were profoundly influenced by them. Most readers are bound to be impressed by the tremendous diversity displayed by these great teachers in their philosophy, method, and teaching style.

New Development in Teaching: Periodic Reports

Change Magazine: Report on Teaching. 1976-- Price not listed but enquire for free copies. (NBW Tower, New Rochelle, New York 10801.)

These *Reports* which began appearing in 1976 offer descriptions of how individual faculty members in a variety of disciplines and at a wide range of institutions actually teach and organize their undergraduate courses. The focus is on the most innovative approaches that have been developed. *Report No. 3* (January 1977) includes economics. The individual reports as well as the Editor's comments are informative and well-written. An excellent cumulative index accompanies each *Report*.

Development and Experiment in College Teaching. Committee on Institutional Cooperation (CIC) of Big Ten Universities and the Univeristy of Chicago. Issued annually.

This compendium provides brief reports on educational experiments and developments in the disciplines and professional schools at these eleven major universities. A perusal of these reports indicates the wide variety of instructional changes which are being implemented.

Memo to the Faculty. Center for Research on Learning and Teaching, University of Michigan. Subscription to four issues, $2.00.

Issued on a variable schedule, the 6-page *Memo* attempts to keep University of Michigan teaching staff abreast of new instructional developments. Recent issues have been devoted to the Evaluation of teaching (#53), The Classroom Scene: Examples of Instructional Change (#54), and Learning How to Learn Independently (#55).

Of Special Interest to Teaching Assistants

Chase, John L., *Graduate Teaching Assistants in American Universities: A Review of Recent Trends and Recommendations*. U.S. Office of Education, 1970, $.40. (Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

Chase presents in this small pamphlet the best available overview of the TA system. In addition to describing the origins and statistical dimensions of the system, the author reviews several recent proposals for reforming and strengthening the TA system. He also presents his conclusions as to what should be done.

Nowles, Vincent, etal., *The Graduate Student Teacher*. American Council on Education, 1968, $2.00. (ACE, One DuPont Circle, Washington, D.C. 20036.)

This is probably the only substantial monograph addressing itself to the peculiar problems and issues associated with instruction by graduate students. The report, in addition to reviewing existing research, presents a number of sample programs which show how various departments view the teaching roles of graduate students and how they facilitate that role.

(The following space is provided for additions to these readings.)

APPENDIX III

DESCRIPTION AND ORDERING INFORMATION FOR VIDEO TAPES

(C-Color. B&W-Black and White. Price Information Subject to Change.)

List of Tapes Described in This Appendix

Strategies in College Teaching:
Indiana University Series

#1 Observing Teaching (C)
#2 Leading Discussions (C)
#3 Media in the Classroom (C)
#4 Effective Grouping Techniques (C)

Trigger Tapes For New Instructors

#5 University of Michigan Teaching Fellow Episodes (B & W)

Lecturing

#6 Lecture on Lecturing (B & W)
#7 The Price Elasticity of Demand (B & W)
#8 Tips on Delivery (B & W)
#9 Preparing Your Section (B & W)
#10 Specific Delivery Skills (B & W)

Attention Grabber for Large Lecture Section

#11 The $10 Bill (C and B & W)

Discussion Techniques

#12 Discussion and Instructional Objectives (B & W)
#13 A Demonstration Discussion of Adam Smith (B & W)

Using the Case Approach

#14 A Demonstration: Discussing a Simple Case (B & W)
#15 A Demonstration: Discussing a Policy Case (B & W)
#16 Practice in Discussing Cases: A Simple Case (B & W)

Evaluation of Classroom Teaching

#17 Videotape Feedback for Economics Instructors (B & W)

Development of Teaching Skills

#18 Microteaching (B & W)
#19 Interpersonal Communication Skills (B & W)

Educational Innovation

#20 TIPS

Audio Tape -- Adam Smith on Natural Price

VIDEOTAPES

All of the tapes described below (except #1-#5, #11(C), and #17, for which separate information is provided) can be obtained for purchase by specifying the number and title, type of tape wanted, and enclosing payment for postpaid shipment. If users prefer, they can supply their own tape and a check for $15 to cover dubbing cost and return postage. All checks should be made payable to Indiana University Center for Economic Education.

Address

Professor Phillip Saunders
Center for Economic Education, BH 913
Indiana University
Bloomington, Indiana 47401

Type of Tape	Cost-Postpaid	
	Less than 30 mins.	30 mins. or more
1/2" EIAJ reel to reel	$20	$35
3/4" U-matic cassette	$25	$40

STRATEGIES IN COLLEGE TEACHING

Indiana University Series

These tapes are designed for use in any department or school (the tapes are not subject matter specific) to help faculty and teaching assistants make their teaching more effective.

#1 Observing Teaching. (Tape EVU-1567A) Color 50 minutes

Describes the process of observing teaching: the pre-observation interview between the instructor and the observer, how to observe what happens in the classroom, and how to conduct a followup meeting between the instructor and the observer. The procedure is discussed and the actual process is illustrated. The tape stresses the importance of listening and detailed recording of observations on the part of the observer. It stresses further the need to avoid imposing a particular teaching style on an observed teacher and the importance of engaging in a joint venture to discover the particular style of the observed teacher. The tape is valuable both for instructors whose classes are to be visited for an observation-evaluation and for faculty whose task it is to observe other instructors.

This tape complements the Minnesota tape, offering an alternative and in many ways a broader approach to observing teaching.

#2 Leading Discussions. Color 50 minutes
(Tape EVU-1568A)

Shows a discussion between two knowledgeable instructors about class discussions and illustrates some problems which typically occur in discussions by means of simulations and excerpts from actual classroom discussions, plus comments suggesting ways of improving classroom discussion. The tape begins with a review of different uses of discussion, moves on to consider the various types of functions of questions, and concludes with five suggestions for making effective use of discussion techniques in teaching.

#3 Media in the Classroom. Color 50 minutes
(Tape EVU-1569A)

Illustrates how to use various media in discussion classes and in large lecture classes. Included are overhead projectors, opaque projectors, slide projectors, copy machines, film projectors, videotape players, tape recorders, and records. The tape emphasizes how each type of media can enhance the learning of students and the effectiveness of the teacher. Although the applications are for English composition courses, numerous suggestions are given about how to use media in a variety of other courses.

#4 Effective Grouping Techniques. Color 24 minutes
(Tape EVU-1570A)

Shows several ways of having students work in small groups in the classroom to help achieve various instructional goals, such as: (1) setting the direction for a subsequent class discussion, (2) problem solving, (3) brain-storming, (4) introducing students to a skill, (5) applying skills already learned in class, (6) stimulating a lethargic or ill-prepared class, and (7) creating a classroom atmosphere

* * *

Copies of these tapes #1-#4 can be obtained for rental or for purchase. For purchase, initial inquiries should go to Phil Saunders at Indiana University (812/337-4050) who may be able to pool orders so that you can obtain a substantial discount from the listed purchase price.

Address	Type of Tape	Rental Price	Listed Purchase Price Postpaid
E. L. Richardson Audio Visual Center Student Services Bldg. 001 Indiana University Bloomington, Indiana 47401	1/2" EIAJ reel to reel	$33	$330
	3/4" U-matic cassette	($22)*	($220)*

* Applies to tape EVU-1570A only.

TRIGGER TAPES FOR NEW TEACHERS

University of Michigan

#5 Teaching Fellow Trigger Tapes. Black and White 60 minutes

Presents short dramatization of a series of situations which focus on common problems encountered by new instructors in the classroom and in out-of-class dealings with students. Each episode is of about 2-3 minutes duration and concludes with the narrator asking "...And now, what would you do?" The tapes are highly useful in stimulating viewers to discuss alternative ways of dealing with the problems illustrated. The episodes are done effectively and though dealing with the teaching of psychology, the tapes are equally useful in economics.

The titles of the episodes are:

Part I

The Model Teacher
Goals
Grades
Picking a Reading List
The Office Hour
The Contract
On the Bins
Never at a Class
The Assignment
There is One in Every Class
    and Sometimes More

Part II

I Got a Problem
I Can't Concentrate
All My Teachers Hate Me
Phone Call
Snap Course

* * *

Copies of tape #5 are available for purchase or rental.

Address	Type of Tape	Cost-Postpaid
Television Center 400 Fourth Street University of Michigan Ann Arbor, Michigan 48108	1/2" EIAJ reel to reel	$20 (rental)
	3/4" U-matic cassette	$70 (purchase)

LECTURING

#6 Lecture on Lecturing. Black and White 60 minutes

Shows Phillip Saunders of Indiana University "lecturing" on lecturing. The lecture was presented to a teacher training seminar at the University of Wisconsin-Milwaukee in Fall 1974. A verbal presentation of most of the material in Chapter 5, this tape offers an opportunity to compare a lecture presentation and a written presentation of essentially the same material. The first part of this tape is the lecture given before the participants viewed the accompanying tape on the price elasticity of demand. Part II shows the discussion of the elasticity tape where weaknesses in the presentation are pointed out and suggestions for improvement are offered.

#7 An Introductory Classroom Lecture on the Price Elasticity of Demand. Black and White 45 minutes

Shows Phillip Saunders delivering a lecture on the price elasticity of demand to his introductory economics class of 360 students. This tape is designed to accompany Chapter 5 of this Manual. It is not an "ideal" model, but it can be used as the basis for analysis and suggestions for improvement.

#8 Tips on Delivery. Black and White 40 minutes

Shows Richard Caves of Harvard University speaking to new Teaching Fellows about how to be more effective in their roles as instructors of elementary economics. Caves discusses a few important do's and don't's, and adds some comments on integrating discussion into the lecture.

#9 Preparing for Your Section. Black and White 50 minutes

Shows videotape clips from various tapes produced as part of the training program for new Teaching Fellows at Harvard University. One segment reveals the consequences of inadequate preparation; another shows two micro-teaching situations; other segments show particular teaching activities that are subsequently discussed by participants in the training program.

#10 Specific Delivery Skills. Black and White 50 minutes

Shows Kim Clark, an experienced Teaching Fellow at Harvard University, instructing new Fellows on how to present material in a class. He makes use of videotape clips to facilitate the identification and discussion of particular types of skills or problems encountered in the classroom.

ATTENTION GRABBER FOR LARGE LECTURES

#11 (B & W) The $10 Bill. Black and White 10 minutes

Shows John Kuhlman of the University of Missouri explaining and then demonstrating his use of attention grabbers, to gain student interest and enhance their motivation. This presentation which occurred at an Economics Teacher Training Program Summer Workshop indicates how effectively a $10.00 bill can be used in explaining the role of money.

#11 (C) The $10 Bill. Color 8 minutes

Shows a videopresentation by John Kuhlman of the University of Missouri on the $10 Bill which he uses to introduce the subject of money to his elementary economics students. While this is more professionally done than the black and white version, it does not contain Kuhlman's interesting commentary before and after the demonstration.

* * *

Copies of the color tape are available for purchase only. Please specify title and type of tape, and enclose payment.

Address	Type of Tape	Cost-Postpaid
Don Mitchell Academic Support Center 505 E. Stewart Road University of Missouri Columbia, Missouri 65201	1/2" EIAJ reel to reel	$50
	3/4" U-matic cassette	$50

DISCUSSION TECHNIQUES

#12 Discussion and Instructional Objectives. Black and White 60 minutes

Shows W. Lee Hansen of the University of Wisconsin-Madison making a presentation on discussion to new instructors at the University of Wisconsin-Milwaukee. The tape presents material which is not included in Chapter 6 of this *Manual*. The first part of the tape explores the relationships among discussion, the various cognitive skills (outlined in Chapter 4 of this *Manual*), and the particular cognitive skills emphasized in economics. The second part involves the participants in an attempt to show what makes a several preselected newspaper articles suitable for discussion and what particular cognitive skills are emphasized by these articles.

#13 A Demonstration Discussion of Adam Smith on "Natural Price". Black and White 60 minutes

Shows W. Lee Hansen of the University of Wisconsin-Madison illustrating the discussion approach by leading a practice discussion of Adam Smith's "Of the Natural and Market Price of Commodities." (Chapter VII, Book I of The Wealth of Nations) at the 1973 Summer Workshop for the Teacher Training Program. This demonstration followed his oral presentation which was quite similar to the material in Chapter 6 of this Manual. After the demonstration the participants raise various questions about the demonstration, the discussion approach, and the appropriateness of the approach in elementary economics courses.

USING THE CASE APPROACH

These tapes are intended to show faculty and teaching assistants how to use the case approach in discussion sections of introductory economics courses. The case material is from Rendigs Fels and Robert G. Uhler, A Casebook in Economics: Exercises in Thinking, West Publishing Company, 1976. Viewers of these tapes should have access to a copy of the Fels-Uhler book.

#14 A Demonstration: Discussing A Simple Case. Black and White 60 minutes
(Tape 1, Part I)

Shows Rendigs Fels of Vanderbilt University leading the discussion of a simple case by a small group of undergraduate students with no prior economics training. The purpose of the tape was to help teaching assistants see how the originals of the approach used it in a real-life situation. The case discussed is Case I-1: "The World's Largest Storage Battery."

#15 A Demonstration: Discussing A Policy Case. Black and White 60 minutes
(Tape 2, Part II)

Shows Rendigs Fels of Vanderbilt University subsequently with the same group of students explaining his Standard Operating Procedure for discussing policy cases and then applying the SOP to a policy case. The case discussed is Case I-7: "Information Please."

#16 Practice in Discussing Cases: A Simple Case. Black and White 60 minutes
(Tape 3, Part III)

Shows W. Lee Hansen of the University of Wisconsin-Madison attempting to follow Professor Fels' example in discussing Case I-1, "The World's Largest Storage Battery," at the 1st meeting of his discussion section in Economics 101. This is followed by a demonstration on the same day of the discussion of case I-6, "Ticket Scalping."

EVALUATION OF CLASSROOM TEACHING

#17 Videotape Feedback for Economic Instructors. Color 30 minutes

Summarizes and demonstrates the use of videotaping to review and critique graduate student instructors of economics at the Economics Department of the University of Minnesota. The reviewing process is explained in detail in the monograph, A Training System for Graduate Student Instructors of Economics by Becker, Lewis, Orvis, Riezman, and Salemi (University of Minnesota, 1975). The videotape is aimed at two audiences, the critiquer and the person being critiqued. The feedback system is reviewed briefly and then the various steps of the videotaping and reviewing process are shown. A demonstration of the reviewing process with a simulated classroom situation--including preclass preparation, class videotaping, critiquer review, and the graduate students and critiquer review of both tape and critiquer's comments--concludes the tape.

* * *

Copies of tape 17 are available for purchase only. Please enclose payment.

Address	Type of Tape	Cost-Postpaid
Center for Economic Education 1169 Business Administration Bldg. University of Minnesota Minneapolis, Minnesota 55455	3/4" U-matic cassette	$75

DEVELOPMENT OF TEACHING SKILLS

#18 Microteaching. Black and White 60 minutes

Shows Nicholas Stayrook meeting with a small group of participants for a session on microteaching in economics at the 1973 Summer Workshop on the Teaching of College Economics at Indiana University. After the purposes of microteaching have been outlined, the procedures discussed, and the use of probing techniques emphasized, a participant give a short lecture-discussion on production functions. A critique of the session follows.

#19 Interpersonal Communication Skills Black and White 30 minutes

Presents two simulated sessions involving interpersonal communication skills developed for use at the 1973 Summer Workshop on the Teaching of College Economics at Indiana University. The first segment shows an instructor meeting with his class after having returned an exam on which the students did poorly; it captures the discussion that arises as students voice their complaints to the instructor about the exam. The second segment shows a teaching assistant conferring with the professor in charge of the course on how to handle his next discussion section meeting when he will return the exams on which the students have done poorly. These two segments can also provide a starting point for discussing a variety of other topics, such as grading, instructional objectives, and course planning.

EDUCATIONAL INNOVATIONS

This tape has been made from a film financed by the Exxon Education Foundation.

#20 TIPS. Black and White 10 minutes

Describes the Teaching Information Processing System (TIPS), an approach to individualizing instruction in large lecture courses. Allen C. Kelley of Duke University developed TIPS and explains its use.

* * *

This presentation can be obtained in several different forms.

(1) The Exxon Education Foundation has arranged for 16mm color prints of the film to be loaned to colleges and universities at no charge through:

Address

Film Scheduling Center
Modern Talking Pictures
2323 New Hyde Park Road
New Hyde Park, New York 11040
Tel: (516) 488-3810

This is listed as film #31863, TIPS.

(2) 16mm color prints of the film may be purchased at cost. Anyone wishing to do so should contact the Foundation.

Address

Exxon Education Foundation
111 West 49th Street
New York, New York 10020

(3) The Exxon Education Foundation has granted blanket permission for anyone to make his own videotape copy of the film. This may be done by obtaining the film on a free loan basis. (See (1) above.)

(4) Those without videotape equipment may purchase a videotape of the film from the Indiana University Center for Economic Education by writing to Professor Phillip Saunders at the address shown at the beginning of this appendix.

AUDIOTAPE

DISCUSSION TECHNIQUES

Adam Smith on "Natural Price". Audio 30 minutes

Reproduces a discussion of Adam Smith's "Of the Natural and Market Price of Commodities" (Chapter VII, Book I of The Wealth of Nations) used to illustrate the discussion techniques outlined in the Hansen paper on discussion techniques. This discussion took place in a graduate economics seminar on teaching, with graduate students as participants. The discussion as well as the comments which followed illustrate the advantages of the discussion approach and indicate some of the problems encountered in using the approach.

* * *

Copies of this audiotape are available for purchase only. Accompanied by a copy of the Smith chapter, a cluster of questions prepared for the discussion, and suggestions for using the tape and related materials.

Address	Type of Tape	Cost-Postpaid
Instructional Media Distribution Center School of Education University of Wisconsin Madison, Wisconsin 53706	cassette	$10